TALES OF THE AIR

To John Taylor

From all at Victoria.

X42
C.1930

TALES OF THE AIR

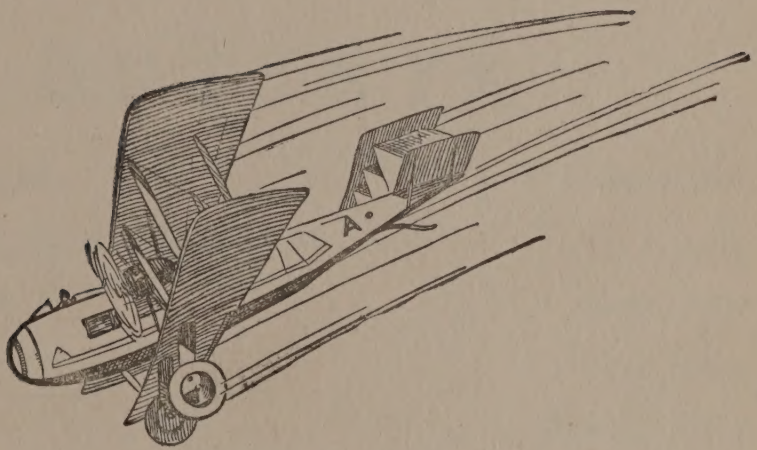
By courtesy of Rolls Royce.

Frontispiece

Flying at 407 m.p.h.
The Supermarine Rolls Royce, winner of the Schneider Trophy 1931.

T.A.

TALES OF THE AIR



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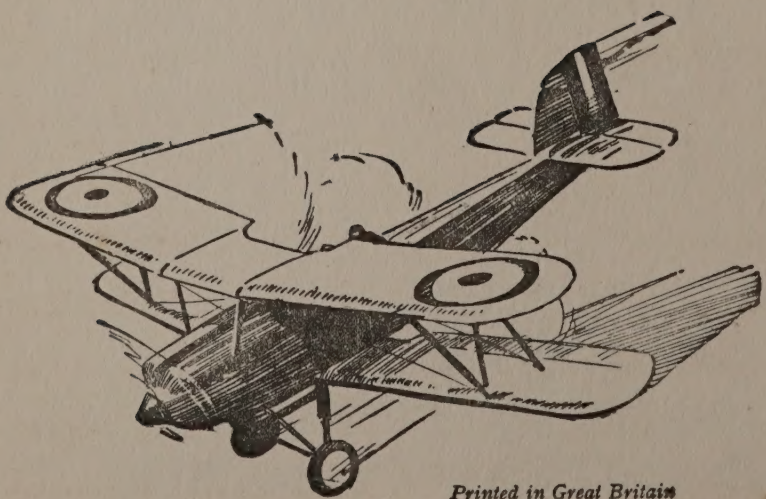

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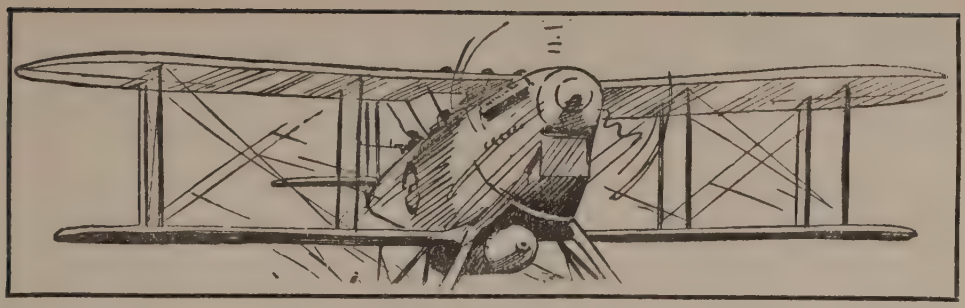

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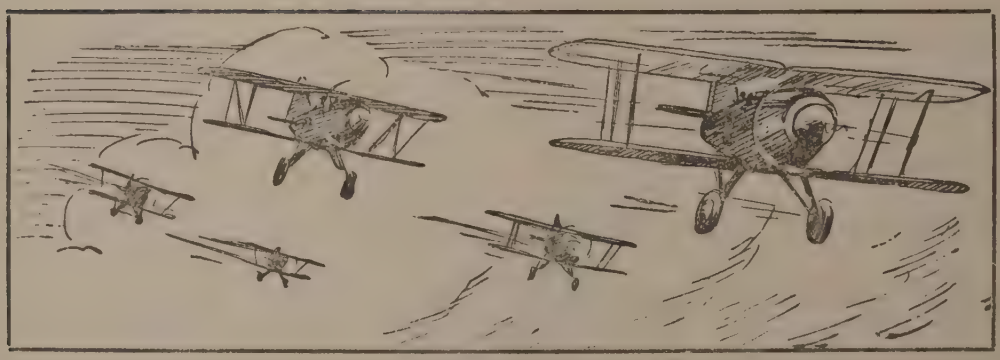


ILLUSTRATIONS

IN FULL COLOUR

Flying at 407 miles per hour *Frontispiece*

"Keep quite still," he said

Gradually the distance between the two planes lessened

It seemed as if the plane would pass on

For a few tense seconds he waited his chance

Up mounted the plane with the tall trees closing in fast on either side

With a frightful shriek the fanatical native let go

(Wrapper reproduced by kind permission of Rolls Royce, Ltd.)

IN HALF-TONE

A Fighter Squadron of Armstrong-Whitworth "Siskins"

A Handley Page 40-seater air liner

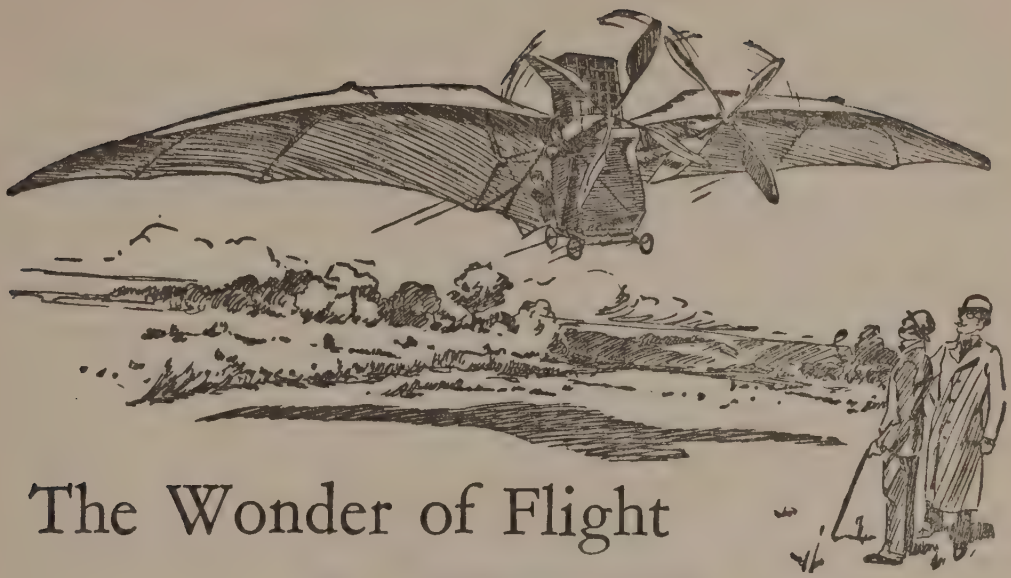
The Dornier "Do X" flying boat

A Westland Wessex monoplane

An aerial view of Stag Lane Aerodrome

The Hawker Tomtit

The Flanders monoplane, 1910-11



The Wonder of Flight

By C. GRAHAME-WHITE

ONE of the first questions the ordinary person asks is: "How can an aeroplane, with a heavy engine and the weight of a man to carry, fly through the air?" It is possible for any one to understand quite readily how the gas in a balloon keeps the craft in the air. But there is no gas-bag with an aeroplane. So how is it done?

The first thing I try to convey to the mind of an entirely non-technical inquirer is the fact that much support, in reality, can be had from the air—invisible as it is—if one only goes to work in the right way. If a man is unfortunate enough to fall off the roof of a tall building, he does not get much support from the air, I grant, on his way down to the ground. But he is not the right kind of object to obtain any sustaining effect out of the air: he is heavy, and presents a small surface to the air, which, therefore, does little to check his fall. To obtain support from the air you must strike it hard with some large, light surface. In fact, if you want to be sustained in the air, you must compress as much of it as possible, by squeezing it down with a big surface such as is provided by an aeroplane wing.

That there is this resistance in air, when it is suitably gripped, or compressed, can be demonstrated by a test with an ordinary umbrella. If you open one and hold it out at arm's length, and then suddenly give it a pull towards you, you will find that there is appreciable resistance, or solidity, about the air The man who descends from a balloon with the aid of a

parachute is using what is really a big umbrella. What the parachute does is to make a sort of cushion of the air which it imprisons under its surface, and so checks and steadies the man's fall. If you take a long, thin strip of wood and swing it round in the air, you will again feel the resistance of the atmosphere. We should remember, also, that a high wind, or rather a gale, will sometimes blow down buildings. The power is there all the time, although it is an invisible one.

Then, of course, we have the illustration which Nature gives us in the birds—particularly when they are soaring or gliding through the air, with their wings practically at rest. They are then obtaining support out of the air by the action of their curved wings upon it. The curve upon the bird's wing enables it to glide, and, similarly, the curve upon the planes of an aeroplane enables it to fly.

Early experimenters, such as Lilienthal, examined the wings of birds with the utmost care. They found them curved or arched from front to back. This curve, they also discovered, was more accentuated towards the front edge of the wing, which dipped perceptibly downwards. Then it curved away smoothly, in a gradual arch, to the rear of the wing. Experiments having been made with models which had curved wings, just like those of the bird, it was found they exercised a distinct upward lift when the air passed under them. Thus the planes of the first flying machines were made with a curve from front to back, in imitation of the bird's wing.

Let us now see how an aeroplane wing sustains a machine in the air. Imagine the wind, as the machine passes through the air, rushing in under the curved front edge of the plane. In doing so the air is thrust down or compressed, and then it moves back, in a smooth, swift stream, under the sweeping arch of the wing. What the curved wing really does is to obtain a grip of this elusive medium, the air, holding or imprisoning it while it passes under the wing, and pushing it steadily down. In doing so, the plane obtains a distinct upward lift out of the air.

Another effect is obtained with a curved wing. The air rushes over the top of the plane, forming a vacuum as it moves across the downward droop which occurs at the rear edge of the wing, and this vacuum exercises a distinct upward pull. Therefore, the planes of a flying machine are pushed up from below by the rush of air, and also drawn up from above.

If you build an aeroplane wing with a suitable curve, and are able to calculate just how fast you can propel it through the air, you are able to estimate what actual lifting influence each square foot of your plane

surface will exert. As a simple instance, one may take the case of the early gliding machines upon which men launched themselves in flight from hill-tops. An average man's weight is reckoned at about 140 pounds. That weight, therefore, has to be supported through the air by the wings of the glider. Lilienthal, the famous German, made his wings with approximately 150 square feet of lifting surface; and he calculated—and his calculation proved correct—that each square foot of his two wings would sustain a weight, while gliding, of just over a pound.

Of course, he was only gliding, and his machine travelled through the air comparatively slowly—slowly, that is, in comparison with a power-driven machine. Therefore his wings would not sustain any great weight. With a modern aeroplane moving through the air at high speed, a much heavier load for each square foot of surface is possible. Such, then, is the system. The aeroplane builder knows what the total weight of his machine will be, and he then provides a sufficient amount of lifting surface in his planes, the result being that, if the machine passes through the air at the requisite speed, its wings raise it in flight.

The Story of the Schneider Trophy Race

By R. S. LYONS

TO-DAY the whole world looks to Britain for the latest and greatest wonders in motor engineering; and partly we are in the debt of Monsieur Jacques Schneider for being in this happy position. Had it not been for this French aviator there would never have been the race for the Schneider Trophy, and Britain might not have been able to prove to every nation that in the construction of racing aeroplanes and seaplanes she stands supreme.

This year of 1929 will live in history as Britain's year, for have we not shown the world that we possess the fastest motor-car ever built, and also the fastest air machine? Segrave and Waghorn and Atcherley—to these three Britons do we owe more than we can ever repay.

When a foreign nation which does not build motor-cars or aeroplanes, wishes to purchase motor machines for official purposes, it is to Britain that she will give her orders, for she has been shown that British is Best; that British engineering is supreme in every respect.

So we must take off our hats to M. Jacques Schneider for giving us this opportunity to prove ourselves in the air. If only he were alive to-day to see what strides have been made in seaplane construction—how we have progressed since 1912 when he offered his trophy!

Let us see for ourselves what strides the nations have made. The first race for the trophy took place a year after its presentation—in 1913. Aeronauts—of whom there were comparatively few in those days—looked on with interest; but the ordinary folk, who did not believe in these bird machines which some said would fly for hours through the air, were neither thrilled nor excited.

The only contestants were France and America. Britain, in those days, had not awakened to her opportunity with her name for producing famous engineers. And France was victorious, M. Prevost succeeding in

completely covering the course of 150 sea miles in 3 hours 48 minutes 22 seconds ; his average speed being 45.75 miles per hour.

No, you must neither smile nor laugh. Great things have usually had small beginnings.

Because France had won, it was France which was allowed to select the place for the second race. She organised the race at the same spot—over Monaco—the same distance, too. Monaco had been lucky to France once ; perhaps Dame Fortune would smile again.

There were five countries represented this time—Great Britain, Germany, France, Switzerland and America. One of the airmen was named Pixton—a Briton—and his machine was a tiny Sopwith biplane. He completed the course in 2 hours, 16 seconds, his average speed being 86.8 miles per hour. And then, his heart doubtless beating very fast, he waited for the other competitors to start. Only one of them succeeded in finishing—in nearly $3\frac{1}{2}$ hours—so that victory fell to Britain. We had entered the lists against the world, and at our first attempt we had practically doubled the speed of the previous winner. And yet, because we have ever been conservative in our ways in this glorious land of ours, our gallant airman's feat passed practically unnoticed. No great, black letters stretching across the main news page in each one of the newspapers ; just a few words tucked away out of sight.

And then came the Great War, and the nations were far too busy to think of the Schneider Trophy. Aeroplanes and seaplanes, however, became speedier of necessity, so that the next race for the trophy, in 1919, found the experts predicting a speed very much greater than Pixton's in 1914.

Bournemouth was chosen as the scene of the race. France and Italy were each determined to wrest the honour from us, and had entered powerful machines. Even in 1919 we did not take such an interest in the event as we might have done, and had the race taken place it would have been witnessed by a few thousand people only. Yet that race was destined never to be flown. Thick fog descended. It was impossible to see the machines, and all dropped out after a few circuits of the course except Italy's pilot, Janello. He completed the course, but, unfortunately, he was not observed at one of the turning points, and so the race was declared void. It was a piece of sheer hard luck for Italy.

But Italy had her consolation the following year. As a compliment to her gallant airman, Janello, it was decided that the race should be flown over Italian waters. The race was flown by only one airman, an Italian,

France withdrawing and Britain sending no challengers. 107 miles an hour was the speed reached by Bologna, the Italian, and so Italy at last could claim a victory in the Schneider Trophy races. Great Britain, France, Italy—each had succeeded once !

Came 1921, and again there was no British entrant. We certainly were " slow," but you must remember that at that time the British machines were entered by private persons, and private persons flew them. The Air Ministry had no official connection with the race.

France sent one machine to Venice to compete, but unfortunately it crashed before the race. Again it was Italy's great opportunity, and there was no stopping her from winning, considering that she had three machines to rely upon. Yet it was a near thing, for one of the Italian machines caught fire, while a second ran out of petrol and came down. The third succeeded in finishing the course, the speed being only four miles an hour faster than in the previous year. Were the Italians at a standstill, then, so far as manufacturing speedier machines were concerned ? *Two* victories stood to Italy's credit now.

The race in 1922 was for the third time flown over Italian waters, at Naples, and if Italy won again she would keep the trophy for all time—for three times winner in five years is the supreme victory. Britain meant to enter this time, and a challenger was built, a flying boat with a Napier Lion engine. Captain Biard was to pilot her.

Two French machines were entered, but because these were not ready in time the race was between Great Britain and Italy—the former with one machine, the latter with two.

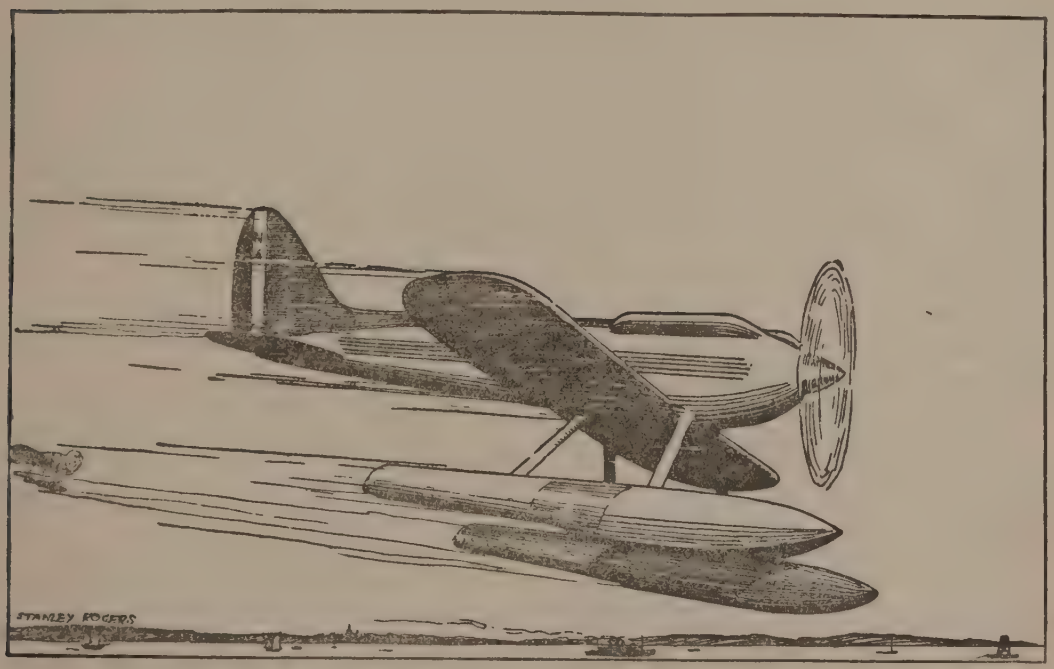
Great Britain showed now that at aeroplane engine construction she could teach the world something, and Biard surprised even the experts with his speed of 145-miles an hour. Yet the Italians were by no means disgraced, one of her pilots being but two minutes behind Biard's time, and the other four minutes.

The following year saw us change our minds and work up some real excitement. For the race was to be held over British waters and we were beginning to sit up and take notice of these International air-speed contests. Everything depended on the weather. This time it did not fail us and Cowes was packed with people to witness the race.

Eight machines were entered, Great Britain being represented by Captain Biard in a Supermarine with a Napier Lion engine, and a Blackburn with a similar engine. France had three representatives, one in a machine

with a Hispano-Suiza engine—a name you know too well for me to explain its significance. America had decided to send entrants this time, and two Curtiss machines and a Navy T. R. machine, were ready to race for their country.

Captain Biard's speed was 151 miles an hour, but America beat him, the two Curtiss machines recording 177 miles an hour and 173. So the trophy went to America—for the first time.



In 1924 there was no contest. Foreign challengers did not send machines to America, so that America could have flown the course and secured a victory for the second time. It may have been that her Curtiss machines were not expected to beat their previous best attempts, or even do as well. The fact remains that very sportingly America declared the race " off," so that it was not until 1925 that the race was again held.

This time there were seven contestants—two from this country, two from Italy, and three defenders for the U.S.A. 1925 was Great Britain's unlucky year, for nothing but misfortune followed in the wake of our machines. Biard, again one of our pilots, crashed during trials. Fortunately

he was unhurt, but the machine was in a hopeless condition. Our other pilot succeeded, although our " spare " man failed. The race was to be decided, eventually, by the three American machines, one Italian and one British.

Captain N. Broad in a Gloster-Napier, made a gallant effort for Britain ; but in cornering at high speed America showed herself far superior, and she won, for the second time, with a speed of 232 miles an hour. Broad was second, his speed being 199 miles an hour, while the Italian was third with 168 miles an hour. The other American machines failed to complete the course. So that America captured the trophy for the second time.

Thus Italy, Great Britain and America had won the trophy twice, and France once.

Again, in 1926, the race was held over American waters, and because Britain did not enter, the fight was between Italy and America. And if America won, the trophy would be hers for all time. Curtiss machines versus Macchi ! And Macchi won, Captain Bernardi beating all previous speeds with 246 miles an hour—and he even recorded 248 on two of the laps.

You will see how the speeds have increased. In 1913, 45 miles an hour ; in 1926, more than five times as fast !

1927 and the race on the Lido, near Venice. America had decided to take a breathing space, so did not enter any machines. France had not a machine suitable, so Great Britain and Italy were left to battle for the honour.

1927 found Great Britain entering officially, for the first time. The Air Ministry had seven machines built, and seven service pilots were detailed to fly them.

Bernardi was again flying for Italy, but he retired after only one lap, his speed being 265 miles an hour. Another Italian gave up on the last lap through engine failure, while the third Italian did not even complete one lap.

Kinkead, one of our representatives, flew at 289 miles an hour on one lap, then had to retire. The other two British machines put in the race went on to complete the course, Webster recording 281 miles an hour, and Worsley 272. Great Britain had won a fine victory.

There was no race in 1928, because the year previous it had been decided to hold the race every other year. And thus we come to 1929 for the next race.

And what a race it was. What excitement among us this time ! No

longer the apathy, for we had come to realise what this race meant to us in millions of money spent by foreign nations. All roads led to the south coast. Americans flocked from their country to see the race, hoping against hope that their own machine would come across.

But the American machine did not put in an appearance. The trials of the British machines gave promise of speeds such as the American entrant could not hope to compete against, and forthwith she was scratched. Likewise with France. It was again a duel between Great Britain and Italy.

And what a duel it was ! Could we beat Major Bernardi's world record of 318 miles an hour, put up since the 1927 race ? Waghorn, 25 years of age—a boy, almost—was the first to start. A man in a bullet ! He hurtled across the sky ! A roar like thunder, and he was gone—a tiny speck in the distance.

Cornering had become a fine art. The man in the machine was like a super being. The heat in the machine must have been an inferno. And yet he stuck it, and made history. We gasped as we watched. Easily he was beating all previous records. It was amazing that a machine could race at such a speed ; amazing that a man could hold the machine to her course.

The Macchi started, but Waghorn overtook her. It could be seen that the Italian's first machine could not hope to beat this British projectile, the work of a master-brain among motor mechanics.

And then came the end. Less than forty minutes to cover 200 miles. Waghorn had completed the course at a speed of 328 miles an hour, smashing to atoms all existing records.

But the Schneider Trophy speed record now stands at 332 miles an hour, made by Flying Officer Atcherley. He was disqualified in the race for cutting too finely one of the corners, but one of the laps was covered, under official timing, at 332 miles an hour.

So the record for wins in the Schneider Trophy races stands like this : Great Britain 4 wins, Italy 3 wins, U.S.A. 2 wins, France 1 win.

And while we are still keeping in our minds this great 1929 race, what must have been the thoughts of the designer of the engines of two of our entrants—Mr. F. H. Royce ? His name, when coupled with that of Rolls, is known all over the world for everything that is best in motor-engine construction ; for all that is luxurious and refined in motor-cars. Rolls-Royce cars and Rolls-Royce aeroplane engines ! The inventions of a master engineer !

What must Mr. Royce have felt like when he received the news that Waghorn in the Rolls-Royce engined Supermarine, had broken all existing records, and that Atcherley had gone one better in one of the laps, in the other Rolls-Royce engined machine ?

A proud moment, indeed. And, boys, remember that Mr. Royce started his career as a newspaper boy ! He won through by his grit and determination—by his maxim that only the best is good enough.

He manufactured electrical equipment early in his grown-up life—this was when the motor industry was in its infancy. But motor engineering thrilled and fascinated him and he bought a car, taking it to pieces and studying its parts, deciding where it could be made better and more efficient.

Soon he had built a car, then a second, and a third. The second was given to the chairman of the firm of Royce, and the chairman used it on every possible occasion—but always he had a cab following in case it broke down !

The third car brought the firm of Rolls into affairs, and this firm agreed to take all Royce's car output. Amalgamation followed later, and the Rolls-Royce car came on to the market.

Aeroplane engines in the war ; racing aeroplane engines for the Schneider Trophy race. Such is the romance of Royce, the designer of the 1929 British racing aeroplanes which made the whole world gasp.

Royce can well be proud of his achievement, and we can be proud with him.

And now a word on how this race is run. I have shown you the story behind its presentation. I have shown how speed records have been smashed time and time again. But how are the speeds recorded ? And what rules are there ? Is it a race and nothing more ?

There are rules and regulations, and it is these which often cause machines to be scratched before the race.

First of all, the race must be held between April and November, and only three machines are allowed for each nation. The course must be over water, and there are navigability tests.

The machines are timed in this manner. In front of the timekeeper are two posts, and he positions himself so that these are exactly in line, appearing as one. The first machine hurtles towards the posts, seeming to strike them. As it passes, the time is recorded, and when the lap is completed and the machine appears again, the time is again taken. The

information is then passed on to a man who calculates, with tables, how long it has taken the machine to cover the lap, and from these the lap-time is worked. At the end of the machine's journey the lap-times are checked with the actual time taken for the machine to cover the course, and if these agree there cannot possibly be an error. Of course, all watches must be syncronised before the start, because a second can mean a big difference.

What would *you* give to race in a British Schneider Trophy seaplane ? All you possess, eh ? Can you imagine what it is like to take the air, from the water, and rush through space at 300 miles an hour ?

In the recently-published book *Speed* the sensation is described by a famous pilot. This is what he says :

" You get your first thrill in really high-speed flying as your seaplane, looking like some beautiful tropical fish, is wheeled out to the water edge.

" Then very slowly the machine and its trolley are lowered until the water floats her clear, and the ' warders ' (airmen in weighted waders and lifebelts), guide her by holding on to the floats. You give the signal, the machine is released, and you open up the engine and taxi out to a position head into the wind. Owing to the lightness of the machine and the powerful engine, the lowest speed possible on the water, with the engine throttled right down, is 10 to 15 knots, so that at first you have the feeling you get when you ride a push-bike down a slope, and the brakes don't work !

" Holding the ' joy stick ' lightly the pilot opens out his engine slowly. A mass of sea water and spray dashes over the machine and pilot. Then there is an unpleasant motion when the engine torque tends to pull the machine down on one side. In a fraction of a second, though it seems ever so long, this motion stops and you feel the machine hydroplaning. When you open her out fully and with the machine gathering a velocity quickly, you feel a rapid pat-a-pat as the metal floats chatter over the surface of the water.

" Just as you begin to wonder if you will ever leave the water—actually it is a matter of 23 to 27 seconds—you feel as if some one had kicked you in the back as the floats leave the water. You look at your air-speed indicator ; it is showing 187 m.p.h. on the climb instead of the more usual 85 or 90. You decide to try her ' all out ' and before you realise it she is doing 250, yet, except that familiar landmarks pass more rapidly, you might be doing a mere 100 . . .

" Coming in to alight for the first time is a very deceptive business . . . you think you are doing about 70 m.p.h. whereas the air-speed indicator

shows 140 ! You have to keep parallel with the surface of the water for a considerable distance and you touch it at 85-90 m.p.h.

" The deceleration on the water is very rapid and most disconcerting the first time as you get a very rapid chatter of the floats on the water which you can feel ' right through you,' then a mass of spray and wave is thrown up as the heels of the floats come down, and then, very quickly, the machine slows down and all is calm."

Despite all these difficulties and tricks of high speed, you'd give all you possess to go up in a Schneider 'plane, wouldn't you ? So would I, and I hope to get the chance one of these days.

Where is all this speeding leading us ? A German named Opel is designing a rocket aeroplane ; scientists tell us that machines will one day be able to fly to the planets ; the present-day aviation experts speak of 1.000 miles an hour as coming within the next few years, and of rocket machines to fly to America in 25 minutes !

Much must be done in modification of design before any of these speeds is possible, but that we are all the time moving towards them is obvious. I wonder what will be the speed record when *you* are my age ?

Curlews to the Rescue

By GEOFFREY PROUT

CHAPTER I

AN UNEXPECTED FLIGHT

BOOM! Boom! Boom!

The mock naval action was at its height, and a Sea Scout rolled over in the grass on the cliff-top and addressed his companions.

"Jolly disappointing," he said. "Even at this elevation we can't see a thing——"

Alec Blair, P-L of the Curlews, as the Sea Scout Patrol of the 1st Poldrewyn Troop was called, broke in:

"Well, *I* never expected that we would see anything much but a distant smoke screen, a gunboat now and again, perhaps, or a destroyer, and seaplanes—*all* distant. They'd hardly come in close to the cliffs and carry out the manœuvres, just for the entertainment of the people in the grand stand."

Forty or fifty people from the little Cornish fishing port had come up to the cliff-top, with glasses, to see what they could of the summer naval manœuvres in the Channel. But many had already gone home, in disappointment.

As the Sea Scout who had first spoken had said, no sense whatever could be made of the distant manœuvres. There was merely the boom of gunfire, like distant thunder, and the occasional appearance of a warship on the horizon. Even those boats that did appear were immediately hidden from sight by a new smoke screen.

"Let's get home," said Blair's chum, Donny Trevor, the Second of the Sea Patrol. "We'd be improving the shining hour more by cleaning out the boat——"

Alec Blair laughed rather bitterly.

"Fat lot of good, that, anyhow—since we can't use her!"

As the Sea Scouts left the cliff-top, descending to the town by the old

disused coastguard track, they talked over their troubles. They were indeed unfortunate. The Sea Patrol had been inaugurated by the Scoutmaster who had started the Troop—Mr. Binney, a retired chief petty officer from the navy. He had procured a naval whaler—of the Montague type—for the use of the sea section of the troop, and had had her passed by the Local Association for " boat certificate " and himself for " charge certificate." The rules are that this must be done ; and that Sea Scouts

" Look ! " gasped Alec, gripping Donny's arm;

must not go out on the sea without their " charge hand " aboard or in any craft but one passed by the Local Association. Now, the Poldrewyn Scouts still had their boat, 'tis true ; but they had no one to take them out. For Mr. Binney had left the district, and the A.S.M. (now Scoutmaster) of the troop, which was mostly composed of land patrols, was a landlubber, and frankly admitted he was an ignoramus on the sea, and hated it, anyhow.

So the poor Curlews had to carry on their training as best they could on shore.

They had a fine roomy headquarters down near the harbour at Poldrewyn, and to this retreat went the boys, the rumbling of the mock naval action still sounding far out to sea.

" We'll have to get the boat cleaned and tidy before Saturday," said Donny Trevor, to his chum and Leader. " Those chaps from Plymouth are coming to see her at three o'clock, and we must sell her if we can. Pity ! But what else can we do ? "

" It's jolly rough luck ! " Alec Blair looked out of the window, a glum expression on his usually merry face. " You would think that one of the fishermen would come forward as charge hand——"

" A busman's holiday," laughed Denny. " No, old son, it's most unreasonable for us to expect one of the fishermen to spend his spare time out on the water with us. They want to be ashore, during leisure hours."

" H'm ! I s'pose so. Though I'd like to be on the sea always."

" Come round to Stoney Point, old man, and let's have a scramble over the rocks. You've got the blues."

" All right ! " Alec Blair laughed and rose from his seat. " Yes, I've got the pip right enough. A scramble round Stoney Point will be just the thing."

The two Sea Scouts bade their chums a blithe cheerio, and left the shed. They passed the harbour and then went out along the sands at the cliff-foot. A mile to the eastward was Stoney Point, jutting out into the sea like the petrified forefinger of one of the giants, which, according to legend, peopled Cornwall in the olden times.

The two boys became more cheerful during their scramble. They turned over masses of seaweed in search of eels, or perhaps a wily lobster ; they raked about the rubbish at high-water mark ; they explored caves which they had explored time and again before. They really had a jolly afternoon, and when it was time to turn back they were on the lonely little shingly beach the other side of Stoney Point.

" Golly, there's one of the seaplanes heading in," gasped Alec, gripping Donny's arm. " Look ! "

Donny jerked his head round. Sure enough a seaplane was speeding towards the land. They could hear the drone of the engine.

The machine drew nearer.

" Avro—small type," said Donny, who was rather an authority on air matters. " Same kind as went with Shackleton's expedition to the South Pole. Remember ? "

" I remember about the expedition," said Alec. " Gee, she's a beauty, isn't she ? "

" She is that. I'd heard that the navy were using small Avros for scouting. What's she heading in here for, anyway ? Right for Stoney Point——'

The boys watched breathlessly. The droning of the engine had now increased to a deafening roar. The seaplane, flying low, was heading in for the beach on which they stood . . . It came lower . . . And, to the Scouts' gasping delight, it alighted on the water close by. The pilot drew her into the shallow water of the beach by sudden bursts of power.

" Great pip ! "

" Something wrong, old son. " Donny Trevor was ripping off his stockings. " Pilot's beckoning to us."

Alec Blair soon had his own shoes and stockings off. The boys waded out till the water was wetting their rolled-up shorts. The seaplane, with one more burst of power—the suction being felt by the boys—came swerving round till she was rolling gently hard by. The pilot rose in his seat, his tractor screw merely turning sufficiently to keep the engine going.

" Oh, Sea Scouts," shouted the pilot, a note of disappointment in his voice. " I—I thought you were naval men——"

" What's the matter, sir ? " shouted Alec.

" Can you handle a yacht ? "

The boys nodded swiftly.

" Rather ! We've passed out in sailing."

" Right ! Then you'll do. Wade out further and clamber aboard. I can carry you both. Never mind about the wet—wade out and look sharp. I want to take you out near the Dodman."

The chums gasped as they waded out, waist deep in the water. Their brains seemed to be all awhirl. What was this miracle that was happening ? They were to have a flight to the distant Dodman in this spanking little seaplane ? It was hardly believable. Something to do with the naval manœuvres, no doubt . . . And they were to help !

Alec had his hand on the wing of the machine. The pilot was shouting out directions as to how they should board. Soon they were in the nacelle, or cockpit, where the photographer sits, usually, in this type of seaplane. They had one glimpse of the controls, dials and indicators. Then the voice of the pilot broke in on their wondering delight.

" Must explain quick. No chance when engine's at full. There's a white

yawl yacht in the grip of the tide out near Dodman Point, and the man on her, single-handed, is insensible. I saw him fall down in a faint, just as he waved to me. I'll put you aboard the yacht. You must sail her in, or she'll be a wreck on the rocks, drifting with the tide as she is. The man will be drowned if we don't look sharp. Even now we may be too late. . . ."

"Mr. Herder!" gasped Alec. "It'll be Mr. Herder in the *Mirage*. He went out to see if he could see something of the manœuvres——"

"Oh, you know him and the yacht? So much the better . . . I'm going to take off."

Alec and Donny sat tight in their seats, mingled delight and concern chasing each other through their minds—delight at the adventure of it and concern for the safety of Mr. Herder, an influential householder in the parish of Poldrewyn.

The engine roared, the wind tore past their heads, the seaplane bucketed, canted, then went forging ahead, her floats foaming through the water. And, the boys thrilling through and through, they felt the seaplane air-borne. As the little craft climbed powerfully, the calm sea below seemed to drop away beneath them.

They were two fledgling Curlews thrilling in their first experience of flight

CHAPTER II

'WARE ROCKS!

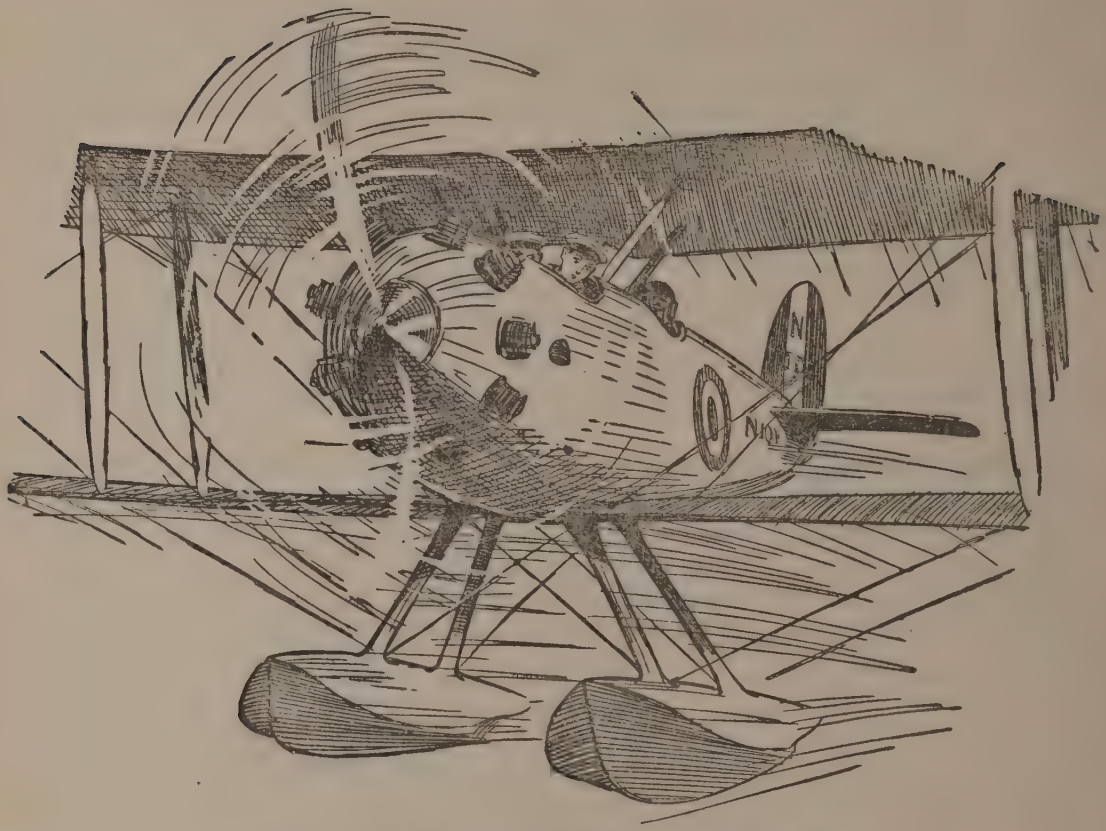
ALEC and Donny peered over the side of the fusilage as the seaplane roared along. They felt the lift and gentle rolling of the machine. It was intoxicating. But they did not forget the object of the flight, pleasurable though the experience was. They were all eyes for a sight of the drifting yacht.

"There she is!" Donny, with arm outflung, pointed across towards the forbidding Dodman. The pilot turned round.

"We'll maybe do it!" he bawled. "Thank goodness she's not yet in the broken water, or I'd never be able to tranship you——"

"We can jump over and swim for it!" shouted back Alec. "She's just entering the jobble of the tide-rip now! We'll get her sailing and make a board out, and so away from danger——"

"There's Mr. Herder. Gee, still unconscious!"



Alec and Donny peered over the side of the fusilage.

As the seaplane swooped downwards they could see the form of the yachtsman sprawled out in the well of the yacht. Another fifteen minutes and the yacht would be on the out-lying rocks, where she would be holed and sunk. And Mr. Herder, unable to help himself, would be drowned.

The pilot of the seaplane sought for a landing. The floats struck the water with a mild shock through the delicate fabric of the machine. She bounced up, struck again, and, the drag of the water suddenly decelerating her speed, she was soon rolling rather heavily close by the drifting yacht.

" Too late ! Can't attempt getting nearer in this jobble ! " bawled the pilot. " Well, we've done our best for him. He is doomed——"

" We can swim over——"

" Both of you swim well ? "

" Yes."

" Maybe there's a chance then ! Well, ready to risk it ? Only about twenty yards. I'll stand by till you get her going. Let draw the jib, and then bring round on the other tack——"

" All right, sir. We know——"

" Fine ! Don't waste time. I'm supposed to be scouting—watching the shore line for any ' enemy ' small craft trying to edge round our ' channel fleet.' And there's an ' enemy ' destroyer I've just spotted trying to edge in, unobserved, towards the shore. Must get after him. You'll—"

Splash !

Donny was in the water.

Splash !

Alec was in, too.

With a powerful side stroke the chums swam across towards the yacht. They boarded by the rudder, pulling themselves up by the painter of the towing dinghy, and clattered into the well. They both heaved the unconscious Mr. Herder clear of the tiller, and Donny put his ear to the man's breast after they had laid him on the grating of the well. The young Scout cupped his hands as he rose.

" All right, sir ! " he yelled. " He's breathing ! We'll get the yacht on the other tack, then render first aid."

The airman, though he could not hear, sensed that Donny had hallooed an " all's well," so he waved a hand, opened the throttle, and the seaplane roared off, rising swiftly into the air. She circled round once, while Donny and Alec let the jib draw, put the helm up and got the yacht's sails full of wind. Then, as she answered her helm, they swung her into the wind.

As they frantically worked, they had one eye for the boat and one for the foaming and lashing rocks close in to their lee. It had been a near thing —was even now a near thing. If the yacht should refuse to tack——

But she was a Falmouth Quay Punt type of boat, deep on the keel, and she obeyed her helm instantly. The tide mopping her on, on towards the ugly rocks, she swung unconcernedly into the wind, unhurriedly, as if contemptuous of the danger. But if unhurried she was sure. And she was round in time.

" Let draw the jib ! " rasped Alec as he heaved the helm up with his shoulderblades and let the main sheet run out through his fingers. " Ah, she's going off ! . . . Cheated 'em, Donny ! Just in time ! "

One of the ugly, jagged rocks was a yard from the rudder as the yacht

gathered way and drew clear. Soon, the chums now breathing freely, she was boring powerfully out to sea, the wind booming in the sails and the water boiling along her lee rail.

" Done it ! " gasped Donny. " And, as you say, only just ! "

The seaplane was now far away, getting apparently smaller and smaller as the pilot sped off on his work of scouting for the " channel fleet." As Alec steered, Donny dropped to his knees beside the insensible Mr. Herder and began to render first aid by moistening the man's brow and hands with cold water and forcing between the blue lips a little brandy from the flask he had found in the cabin.

. . . . . .

The yacht was now well out of danger and Alec had hove her to. The boys gently got the insensible form of the man through the cabin door and on to one of the sofa berths. Here, they rubbed the hands and chest, towards the heart, and in a few moments Mr. Herder opened his eyes. He started up as consciousness came back.

" The Snags ! " he cried. " We'll be on them——"

" All right ! All right, sir ! " Alec spoke soothingly. " The yacht's hove to three miles south of the Dodman. She's safe——"

" You—you . . . How on earth did you get aboard ? "

Donny grinned.

" Not on earth, sir," he said. " In the air. A seaplane brought us out. We were just in time to get the yacht clear of The Snags. You must lie quiet. My chum and I can manage the *Mirage.*"

" You—you're of those Sea Scouts who often do jobs for me when I'm fitting out . . . 'Pon my soul, I'm still dazed ! How did you get on the seaplane ? I saw one close down having a look at me just before I got that stroke. She was scouting for the fleet, no doubt, and came to see if I was anything to do with the ' enemy '——"

" That's it, sir. But don't talk too much. We'll explain."

And the chums told Mr. Herder everything—how the seaplane had come close to the shore, taken them aboard and out to the yacht. How they had swum over to the craft, got her sailing and then, when in safety, how they had tried to bring him round—with success as his present consciousness bore witness.

Mr. Herder swept his hand over his brow.

" Good boys ! Good boys," he said. " Well, I—I feel groggy, to put it mildly. I can trust you with the yacht, I can see. Get her back to

Poldrewyn. Keep well to wind'ard of the beacon when you point in . . . But I'll be out in the well when you get nearer. Give me a shout when you are pointing for Poldrewyn, will you ? I'll call to you if I feel myself going off again——"

" What was it, sir ? Hit on the head by the boom ? " inquired Alec.

Mr. Herder smiled wanly.

" Would that it were ! " he said, sadly. " No, lad, it wasn't an accident that knocked me insensible. It is an inherent weakness. I should never, never sail singlehanded. But get her home. For I must get into my bed to rest up for a day or two."

The Sea Scouts made such a seamanlike job of beating the heavy yacht back to Poldrewyn that when Donny came below and reported the harbour mouth over the bowsprit cranse and the beacon on Eastern Rocks well to leeward, Mr. Herder had his confidence in the boys so firmly established that he told them to carry on.

" It might be as much as my life is worth to exert myself now, boys, he said with a flicker of a smile that held a keen hint of bitterness. " You know my mooring ? Well, luff up to it and get the chain bitted, and then douse the canvas. You can then help me into the dinghy and row me ashore and maybe one of you will telephone for my car to come down for me."

Delighted with the idea of bringing the big yacht right in all on their own with all the eyes of Poldrewyn watching in wonder, Alec and Donny stood to helm and sheets. And the *Mirage* swept in between the pier-heads with a round score of people standing by on either side shouting out to know how the Scouts had got aboard.

Alec and Donny had too much to do to reply just then. Their fellow-Curlews were on the eastern quay, gaping, hardly able to believe their eyes.

In swept the yacht, and Donny strolled forward as Alec put the helm over. Down came the foresail, the hanks rattling on the stay. Up pointed the yacht, jib and mainsail lifting, then shaking with a low rumble. The white mooring buoy was close under the bows, way all but lost, and Donny stabbed over with the boathook. He hooked the buoy, got it aboard, handed in the grass rope and got the chain, which he bitted smartly before the yacht took her first sheer. Then, both Scouts now working promptly but unhurriedly, they took in the jib and lowered and stowed the mainsail.

With all secure and stowed, they helped Mr. Herder from the cabin and into the dinghy, and so ashore.

. . . . . .

The feat of the two Sea Scouts was the talk of Poldrewyn. Alec and Donny had to tell their story over and over again.

The next evening, Mr. Herder's chauffeur drove into Poldrewyn with the request that Alec and Donny should go back with him to Treen House, Mr. Herder's home. The boys went off at once.

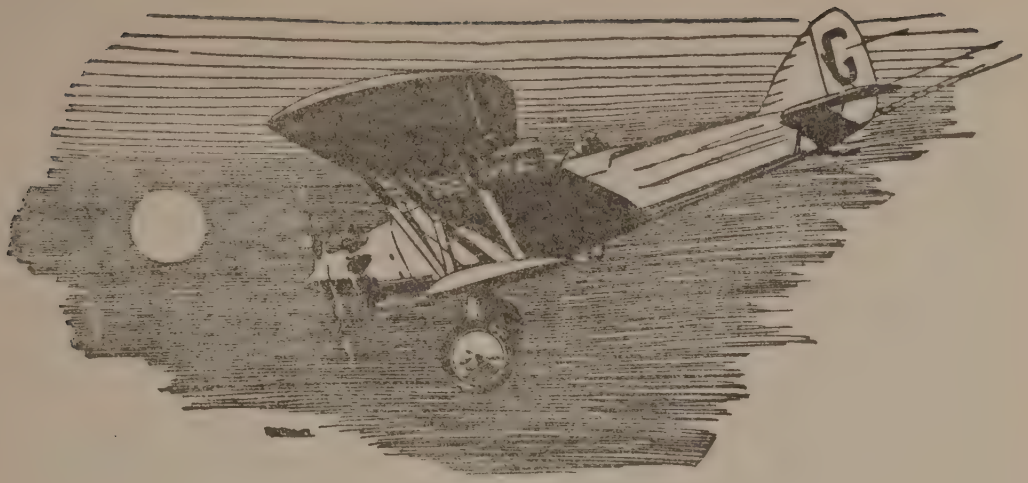
Mr. Herder was in bed. But he was now looking much better. He had a letter open in his hand. He smiled and greeted the boys heartily.

" Letter from that airman sport," he said waving the paper. " He addressed it to ' Mr. Herder, Poldrewyn,' in the hope of it reaching me. It arrived all right, as you see. He is anxious to know if I got back all right. And he says—" Mr. Herder referred to the letter—' Remember me to those plucky young Scouts.' "

Alec and Donny thrilled.

" And now, boys," said Mr. Herder, " I want to propose something to you. I know of your difficulties since Mr. Binney left Poldrewyn. Well, how about my getting the *Mirage* examined for boat certificate and myself for charge certificate ; and all you Sea Scouts can then sail with me—? " The man held up his hand to suppress the burst of delighted thanks from the Scouts. He grinned. " Purely selfishness on my part, lads," he continued. " It is I who must thank *you*. You see, considering my weakness, it is a danger for me to sail alone. And—and the way you two brought the *Mirage* home shows me that, even if I have another stroke at sea, I'll always be safe if I have one or two or more of you aboard when I go sailing. Now what about it ? I hear you sold your whaler this afternoon, and that her sale wipes off the debt that was hanging round the necks of the sea section of the troop. Well, what about the *Mirage* to take her place and me to take the place of the good and capable Mr. Binney ? Is it a ' go ? ' "

It was. And now all the Sea Scouts of Poldrewyn can manage the *Mirage* just as if they had been born with her tiller in their hands !



GREEN FIRE

By T. C. BRIDGES

NED STANTON drowsed over the wheel. The steady thunder of the big Jaguar engine and the scream of the wind through the struts and stays of the 'plane combined in a monotone of sound that dulled the senses and made it difficult to keep awake. The passenger, in the seat behind, was already sound asleep. They had left Crandon aerodrome early that morning and were now over the Rhone valley, moving towards Rome through a perfect afternoon. Ahead, the horizon lay like a faint green mist through the haze of the propeller, above, cloudless blue ; and through everything, dulling the brain and lying like lead on the eyelids, that steady ceaseless roar.

The 'plane bumped slightly, and Ned roused himself and glanced at the altimeter ; then, pushing the throttle a trifle wider, he slowly eased back the stick. The tone of the engine lifted as the 'plane zoomed into a long upward slant. At five thousand feet he flattened out, and the pitch fell again to the monotonous pulsing roar.

Ned's thoughts turned to his passenger. He had called himself Waterbury—Cyrus P. Waterbury, a director of Sahara Concessions, Ltd. Big, prosperous-looking man. American, of course. Spoke with a terrific accent. Decent sort, though. Ned had liked the twinkle in his eye when he had joked about treasure-hunting. Was it a joke, though ? What about those

picks and shovels? Waterbury had put them in at the last moment that morning before they took off. He had offered no explanation, and Ned had not questioned him. The destination, too. That was queer. No definite place—just North Africa. He had said he would give further details when they reached Malta. "Oh, well. Some stunt, I suppose," thought Ned. The never-ending roar asserted itself once more, drifting the thoughts from his mind and urging him to sleep.

Suddenly the note changed. A cylinder was missing—two, three. Hurriedly he scanned his gauges. Ah! No petrol. No. 1 tank empty. He reached for a tap and turned on the second tank. The gauge needle did not move. He tapped it. Still no movement. The engine was coughing badly now. Alarmed, he worked the tap to and fro, rapping the gauge again. No result. A last despairing gasp from the engine, then silence save for the whistle of air through the wing struts.

"Hang the luck!" muttered Ned, as he pushed the 'plane into a glide and scanned the earth, still far below, for some place where he might land. Luckily they were still over flat country, and Ned picked the largest field he could see, and went swinging down to it in wide spirals. At fifty feet from the ground he straightened the 'plane, skimmed a fence and, as the wheels struck ground, pulled hard back on the stick, and the 'plane went bumping and lurching over the field to pull up within a dozen yards of the opposite hedge.

Ned untied the flaps of his flying helmet and mopped his face. "Whew!" he muttered, "might have been worse."

"Say, young man," came an aggrieved voice from behind him, "what's the big idea?"

Ned turned and saw the large red face of Mr. Waterbury staring at him over the top of the fuselage. He was rubbing his eyes as if he had only just awakened, and seemed quite unaware of what had happened. "This ain't Rome, is it?" he asked vaguely.

"No, sir," Ned answered, climbing from his seat. "Engine conked out, and I had to bring her down where I could. It's a choked pipe, I think, or possibly a leak in the tank. I'll just have a look."

He unscrewed the tank cap and thrust in a short measuring stick.

"Empty," he announced. "I thought so. Now to find the leak . . by Jove, sir, look here!"

"Well, what is it, son?"

"Hole bored clean through the bottom of the tank. Now who on

T.A. C

"Keep quite still," he said.

earth . . . ?" He broke off as Waterbury fairly leaped out of his seat.

"Wh-what?" he yelled. "What's that you say? Bored?" His voice dropped to a growl. "Oh, the hound!" he muttered. Then, eagerly: "Look here, son. How soon can you fix it?"

"I can patch the hole all right in ten minutes," Ned answered. "But we'll need a hundred gallons more petrol and I haven't a notion where we can get that."

Mr. Waterbury said something forcible. Then he threw a quick glance round the field.

"That looks like a road over there," he said, pointing to a line of telegraph poles. "You fix that tank, son. I'll get the gas." And with that he set off at a round pace across the field.

Ned looked after him and a grin spread slowly across his face. Cyrus P. was a sportsman all right. He turned his attention to the punctured tank. Now who could have done that? No friend of Cyrus's evidently. Ned reasoned that some one had got into the hangar during the night, for the tanks had been filled the previous evening, and, as he had noticed no leakage, the drilled tank must have run dry before they started. Rotten thing to do, too. Might easily have smashed them up altogether.

With these thoughts in his mind Ned fished out a box of spares from the body of the 'plane and rapidly set about repairing the damaged tank.

. . . . . .

"I reckon this should do it," said Cyrus P. Waterbury, squinting once again at his compass. "Twelve paces east nor'-east o' the big pillar, an' checked by ten south of the thorn bush. Yep. Can do. Gimme that pick, son."

It was two days later. Ned had made a quick job of repairing the tank, but Waterbury had had trouble in getting enough "essence," as the Frenchmen called it, and half a day had been spent in unloading consignments brought to a field by a single weary donkey (the only conveyance obtainable); while Cyrus P. had stamped about, muttering hard words. As soon as possible they had pushed on to Rome, and at Malta, Waterbury had told Ned his secret.

He said that a short time ago one of the Company's prospectors had crawled into camp, dying of thirst, with a story of a box filled with cut emeralds which he had found in some ruins far in the hinterland. His water was failing, so he had buried the box, bringing back a plan of the

place and a pocketful of samples. The samples alone had been worth a small fortune, but some one had played dirty, stealing a duplicate of the plan and selling it to a financier named Marques. Waterbury had luckily discovered this, and had chartered Ned's 'plane in order to " beat Marques to it," as he put it. Marques was evidently hot on the trail, for the damaging of their 'plane was almost certainly his work, and Cyrus P. was in a hurry to get the stuff before he arrived.

While Waterbury had been taking measurements Ned had had time to look at the extraordinary surroundings to which the prospector's map had brought them. They were in a shallow valley some half-mile wide, flanked by huge cliffs of bright red rock merging at their upper ends into one colossal mass, which towered above them in the form of a gigantic pyramid. The valley itself was of hard sand dotted with patches of dense green scrub, with here and there a big bush of camel thorn adding a touch of brown to the scene.

But the most extraordinary part of the place was that in which they were now standing. All about them, dotted over a large area, lay huge tumbled masses of hewn masonry. The stones were red, similar to the rock of the cliffs, from which they must have been taken by the ancient builder. All about lay fallen columns, slabs and pillars, some half buried in the sand, some still standing, their worn carvings still visible through the weathering of centuries. It was a place to make an archæologist rave, and Mr. Waterbury, who had a real love for old places, commented on it between digs of his pick.

" Say, won'erful spot, ain't it ? " he gasped, as he levered out a loose rock and handed the pick back to Ned. " Try along there, son, in a line with me, and gimme the shovel. Gee ! I'd sure give dollars to get one of them pillars back to li'l ol' New York."

They picked and dug and heaved and the dusk drew down upon the valley. The pillars stood huge against the sunset and their shadows lay hard and black in the red glow. All was silent save for the chop of the pick and the rasp of sand in Cyrus's shovel. Suddenly came the thud of metal on wood, and a moment later the air was rent by a whoop of joy from Mr. Waterbury. Five minutes' furious work, a big heave, and pushing, grunting, straining, they had the whole thing out of the hole—a solid square box made of blackened timber and bound with rusted iron bands.

They climbed out after it and together lifted off the lid. Then—even Cyrus gasped. The sides of the chest were immensely thick, but the small

square of the interior seemed to have burst into flames. Green flames! Flames that were still at one moment, but when he moved burst into a thousand points of fire, shading through greens into inky blackness, all moving, gleaming, flashing, so that it hurt to look at them. They both stood, spellbound, gazing at that incredible sight; at those glorious gems. And then spoke a voice, a human voice, coming from the shadow of a pillar.

For a moment he stood motionless.

"Keep quite still!" it said.

They looked up, and two men stepped out of the shadow. One was a little wizened rat of a fellow with an enormous hooked nose. He was obviously a foreigner. But it was at the other that Ned stared in astonishment. He was a tall, lean chap, with a clean-cut face that would have been handsome but for the twisted mouth and hard eyes, that now glinted at Ned over the barrel of a revolver. He wore flying kit and Ned instantly recognised him as Dudley Foster, one of the Crandon pilots. But how on earth had he got here? It flashed through Ned's mind that he must have

brought the little man in one of the Crandon 'planes, and he supposed, had been bribed by him to damage the tank of Ned's 'plane. The delay in France had enabled them to get ahead, but they must still have been nervous, for they had hidden their machine. That Ned was certain of, for Cyrus and he had studied the ground carefully before landing and neither had seen a sign of it. There was nothing remarkable in that, for there were a thousand places under the cliffs where a 'plane might be hidden. But Ned was amazed that Foster should have been such a scoundrel.

For a moment they stood motionless. Then the little man burst into shrill chatter, brandishing his pistol in the direction of Mr. Waterbury.

" Zat was my stuff," he cried. " Who was you ? What you do here ? You clear out sharp ! " He advanced, waving his gun.

Foster also stepped forward.

" Move back ! " he snapped. " Both of you, keeping your hands up. Stop there ! Now sit down."

He kept them covered, while the foreigner rushed to the box and clawed out great handfuls of the green stones, thrusting them into a deep leather bag. His face was convulsed with greed. He grinned from ear to ear, muttering and crowing as the emeralds slipped like a stream of green fire through his fat fingers. Once he stopped over a particularly large one, patting and fondling it, and chuckling with glee. Foster watched him, disgusted.

" Hurry up," he growled. " I'm not going to stay here all night."

Presently the box was empty. The foreigner spilled the last of the stones into his bag and snapped the lock.

" Now ! " said Foster. " Marques, you keep behind me. You, Stanton, and you, whatever your name is, don't try to move or it'll be bad for your health." Still keeping them covered, he began to move backwards.

Ned looked him full in the face. " I didn't think you were such a hound, Foster," he said quietly. " How much are you getting for this ? "

" Keep your mouth shut ! " snarled Foster.

Then came suddenly from somewhere up the valley the roar of a hunting lion. It was an eerie, blood-curdling sound, and they all started involuntarily. And in that moment Ned was seized with an inspiration.

" The lion ! Look at the lion ! " he screamed, pointing to the shadows behind Foster and Marques.

The suddenness of his cry and the expression of utter terror upon his face completely unnerved Foster. He spun round with a gasp and, a split-

second later, Ned's fist crashed into the side of his face. He dropped without a sound. Ned dropped, too, fearing that Marques would fire, but nothing happened, so, grabbing Foster's gun, he scrambled to his feet.

To his amazement there was no sign of the man, and looking round, he was paralysed to find that Waterbury too had vanished. The sun had dropped over the horizon and the gloom of the short African twilight lay upon the valley.

Suddenly he became conscious of an extraordinary sound—a sort of gurgling and choking that seemed to come from the ground beneath his feet. Turning, he was horrified to see a pair of human legs rising from what he took to be a dark shadow on the ground in front of him. They shot up, waved frantically for a moment, and then vanished as suddenly as they had appeared. And then came a voice, thin and plaintive.

" 'Elp ! 'Elp ! Foster ! 'E've got me ! Oh, 'elp ! "

Thump !

" 'E—'elp ! "

Thump ! Thump !

Silence !

And then, slowly rising out of the shadow, compassed about with a large and satisfied smile, appeared the rubicund face of Mr. Cyrus P. Waterbury.

" Slimy little bird, that," he remarked cheerfully. " Tried to skip out with the loot when he heard your yell, but I collared him, and "—rubbing himself painfully—" I guess we both forgot the treasure hole ! Then I got hold of the place where his neck would be, if he had one, and he tried to bite me, so I turned him upside down and gave him the head-bumps, an' that made him real sad. He's resting now, though, all nice and peaceful ! "

" How's your guy ? " he went on, when Ned had finished laughing. " Pushed him in the face, eh ? Well, I guess we must put the kybosh on these little larks. Gotta length of string about you ? "

They tied Foster's wrists and hauled Marques out of the treasure pit, and while they were waiting for them to come round, Waterbury opened Marques's bag and began fishing about amongst the glittering contents. A moment later, Marques and Foster, opening their eyes together, were just in time to see him take out a huge cut emerald and press it into Ned's hand with some warm words of gratitude. Foster ground his teeth and Marques uttered a faint moan and closed his eyes.

. . . . . .

Half an hour later Mr. Waterbury brushed away the crumbs of his last ham sandwich and leaned back with a satisfied smile. A huge fire roared in front of him, thrusting out the surrounding blackness and showing the 'plane, dim and ghostly, standing about fifty yards away on the edge of the circle of light. Beside him sat Ned, idly throwing twigs into the blaze. Opposite them, Marques and Foster, their lashings shifted to their ankles, sulkily devoured their rations.

" Say, son," said Mr. Waterbury, nodding towards them—he never called Ned anything but " son " now) ; " say, son, what'll we do with them gents ? "

Ned grinned. " Keep 'em till the morning, I should think, sir," he said, "and then let them go."

" Yes, but you told me just now that that Foster guy's got a faster crate than ours."

Ned's grin widened. " Yes, that's true, if he's brought the same one that he usually flies at home."

" Well then," said Cyrus, " he'll catch us ! "

Ned laughed outright. " Don't think, so, sir."

Mr. Waterbury choked with exasperation ; then he leaned forward, studying Ned's face.

" Say, son," he whispered, " what's the big idea ? . . . You got something, now ! " he accused, as Ned did not answer. " What is it ? "

Ned chuckled again. " Can't say now, sir," he said. " I'll tell you in the morning."

" All right. Sure thing, then. Waal, I guess I'll go get a wink," said Mr. Waterbury, rising to his feet. " Can you keep an eye on these fellers ? Give me a shout in a couple of hours and I'll take on."

He walked over to the 'plane and clambered into the fuselage.

Dudley Foster was furious, some moments later, at having his wrists securely bound by Ned Stanton. And then he saw Ned move cautiously to the 'plane and take out a shovel, a box, and something that looked like a monkey wrench. With these Ned returned, and then, to Foster's amazement, changed Marques's ropes from his ankles to his wrists, yanked him to his feet, and picking up the box, wrench and shovel, jammed Marques's own revolver into the small of his back and marched him away into the darkness.

Left to himself, Foster lay puzzling over this new development, but could make nothing of it. Still, he would be released in a few hours' time,

He dropped without a sound.

so what did it matter? He rolled over and fell into a fitful sleep.

When he awoke, it was broad daylight. The fire had died down, and Waterbury and Ned sat down beside its embers, finishing a hearty breakfast. Marques had vanished, and Foster looked at Ned in horror. Ned, however, did not seem very bloodthirsty, for he grinned cheerfully, asked Foster how he had slept, and passed him some sandwiches and a big cup of steaming coffee. As Foster ate, he watched Ned and Waterbury pack up their gear and stow it into their 'plane. Once Ned whispered something that Foster could not catch, and they both burst into a roar of laughter. Then Ned came over with a packet in his hand.

" Better give these to Marques," he grinned. " It's the last of the grub. You'll find him in your 'plane. Sorry," he went on, " but I'm afraid we'll have to leave you now. Your hands are free. You can untie that cord easy enough. S'long."

Still chuckling, he turned and went back to the 'plane. Foster watched

him swing the propeller, and as the engine burst into life, saw him duck under the wing himself into the cockpit. The engine roared and the 'plane moved off, gathering speed until finally it lifted. Overhead it thundered in a steep spiral bank, while Foster caught a glimpse of a smiling, rubicund face behind a waving handkerchief; then it shot away into the blue, dwindled to a speck, and vanished.

The knots were tough, and it was half an hour before Dudley Foster arrived at the place where he and Marques had hidden their 'plane. He looked, rubbed his eyes, and looked again. Yes, it was true. The 'plane had no propeller. Coming closer, he discovered that it lacked also the best part of its engine. He peered into the fuselage. Marques sat gagged and bound in the passenger's seat. A scrap of white paper, pinned to his coat, attracted Foster's attention. He took it and saw that it was a single page torn out of a note-book, closely written in pencil. Wondering, he began to read:

"DUDLEY DEAR,—I beg to inform you that your engine is distributed as follows:—

Plugs—under the tail of the 'plane, depth about four feet (they'll need a bit of cleaning, too!)

Carburettor—under tip of starboard wing. Depth ditto.

Float for same—tip of port wing. Depth ditto.

Needle—inside the fuselage, somewhere. Marques is probably sitting on it.

Nuts, connections, etc.—ditto.

Magneto—I haven't dismantled this as I thought I mustn't be too hard on you. You'll find it in the cockpit; leads and fixings, ditto. In case your courage fails you in your search for these various parts, you'll find a box of spares in the treasure hole. There's a shovel in with it too, and six feet of sand on the top, so you'll have rather a job, I'm afraid. Oh, I forgot to tell you that the propeller is up in the top of that big thorn bush to the left of your 'plane; I had rather a job getting it there, but happened to have a bit of string with me which did the trick. Afraid *you'll* have to climb. Looks horrid prickly, too. Give my apologies to Marques, by the way; I had to take him along last night to show me where you had hidden the 'plane. On the way he must have thought he heard a lion or something, as he got the wind up and began howling like nothing on earth; so I had to gag him. Well, so long! Cyrus P. sends you his love.

"Yours happily,

NED STANTON."

The Scarlet Hawk

By THOMAS J. WILLIS

FROM over the foothills in the distance the aeroplane appeared, flying straight for the two wooden shacks that stood at the edge of the forest. The machine swooped earthwards with no sound but the shrill scream of the wind in the wires and taxied along the ground to a standstill.

The pilot climbed from the cockpit and leaped to the ground. A second later he was followed by his companion.

"Thank goodness that's done!" the pilot said with a sigh of relief; and slipping his flying helmet from his head. "It's no joke delivering registered mails while this fellow they call 'The Scarlet Hawk' is knocking around. What say you, Jimmy?"

Jimmy Payne looked serious for a moment. "You don't think Uncle is pulling our leg, do you, Phil? I mean to say, I've heard of highwaymen holding up stage coaches, and bandits who made their get-away in a motor-car, but a bandit of the air. . . ."

"Well, any way, we won't worry until we actually meet The Scarlet Hawk—and woe betide him if we do!"

Phil led the way into the trim little shack which was their home, and above which flew a little pennant which bore the words "United States Mail Service." Just behind the shack was a large corrugated iron hangar in which their machine was housed.

It was just over a year ago now, since Phil Harding and Jimmy Payne had left the Old Country to come to the States. The two boys had been

inseparable chums at college. Then when disaster had overtaken Phil's father, he had cut short his education and entered a London office.

It took Phil exactly three months to realise that he could never endure sitting on a stool for eight hours a day, poring over innumerable ledgers. And then, at the end of three months, collided with his chum one morning, and Jimmy blushed like a girl when he confessed that school, without Phil, was infinitely worse than being stuck in a stuffy office. And so he, too, had gone to business.

The outcome of it all exceeded even Phil's expectations. On that memorable day when the chums met each other in the city, Jimmy suddenly remembered Uncle Erasmus.

Now, Uncle Erasmus, let it be known right from the beginning, was a sport, a real " stunner." Some fellows have uncles who do nothing but sneeze into their beards, others have uncles of whom they never hear and seldom see. That's where Jimmy was lucky ; he often heard from Uncle Erasmus, though he'd never seen him !

Uncle Erasmus, too, had tired of a London office, and one Monday morning had quietly shipped as cabin boy aboard an Atlantic steamer. The office had seen him no more.

Once in the States, Uncle Erasmus got a foot securely placed on the first rung of the ladder of success and slowly and systematically he began to climb. Until now, so Jimmy affirmed, he was something or other at the top of the United States Mail Service. That was good enough ; and before Phil had arrived back at his office—thirty-five minutes late—the two chums had penned a moving appeal to Uncle Erasmus.

" We're both eighteen, now, Uncle," Jimmy had written, after introducing Phil, " and we're fed-up to the teeth. We want adventure and plenty of it. Can you help us ? "

Because Uncle Erasmus was one of those uncles whom every fellow dreams of having, Jimmy had his reply within three weeks. " Come right over and I'll see what I can do for you. I'll arrange that you're allowed into the country without trouble."

The British lads had come right over ! Uncle Erasmus said, in the first place, something about sticking them in an office, but Jimmy and Phil had politely, but very firmly, shaken their heads and intimated that there was nothing doing.

" Uncle," said Jimmy, almost pathetically, " we want adventure. That's why we're here. Adventure—with a capital ' A.' "

" Hear, hear ! " Phil put in, thus letting his chum know that he'd got his moral support, at least. Then, turning to Uncle Erasmus, Phil said : " Sir, we want adventure. When we were in London we tried to find it. Jimmy jumped on to a train moving at twenty miles an hour out of the station—and got fined forty shillings ; I did sixty-five on my motor-bike—and was awarded a fine of five pounds or twenty-eight days. That was adventure, sir, but we had to pay too much for it ! "

Uncle Erasmus puffed at his cigar for a few moments, eyeing each of the boys in turn through the clouds of pungent smoke.

" Say, did either of you youngsters ever fly a 'plane over in the Old Country ? " he asked suddenly.

" I did, sir ! " Phil answered eagerly. " When—when—well, before Dad failed in business, I joined a light aeroplane club during the holidays and soon got my certificate."

" Good," Erasmus Payne said briskly. " I guess, then, that I'm willin' to give you youngsters a chance. See here. . . ."

And he proceeded to tell the chums how he was developing the mail service in the ranching districts of the United States ; the outlying areas, sometimes fifty miles from the nearest railroad.

" I guess I want to speed-up deliveries," he continued. " Some of those ranchers have to wait days before their mails are delivered from the rail-head."

" And that's where you youngsters will come in. You'll make your headquarters out there in the heart of it all. I'll have shack and hangar built and provide you with a 'plane."

" You really mean that, Uncle ! " said Jimmy enthusiastically.

" Sure ! " was the reply ; " but I guess you youngsters will have to be hundred per cent. You're greenhorns—and I guess you've got a heap to learn. Anyway, I'm willin' to give you a trial."

Uncle Erasmus had been as good as his word. He'd had the shack and its adjoining hangar built and, six months later, Phil at the controls, with Jimmy guarding the sacks of mails at the back, had gone on their first " round."

It was only during the last two or three weeks that they had heard about The Scarlet Hawk. Uncle Erasmus had been the first to mention it in his weekly letter—just a few lines about a crook who was rumoured to be flying around in a red aeroplane, and who had more than one successful mail robbery to his credit, or otherwise. . . .

The chums wheeled their little De Haviland " Moth " into the hangar and, after securely locking the wide doors, went back into the hut. And while Phil was washing some grease from his hands Jimmy set about laying the table for supper. It was then that he got the first surprise.

A sheet of plain paper was neatly pinned to the table, and as Jimmy read the few words written on it he gave a little cry of amazement.

" Phil, look at this ! " he cried, thrusting the paper under his chum's nose.

And Phil, hardly waiting to dry his hands, read the words neatly printed in red ink :

" Watch your step, Britishers. Registered mails usually hold money, and I'm sure fond of the greenbacks !—THE SCARLET HAWK."

Phil's jaw set firmly. " I reckon that's a challenge ! " he said quietly.

CHAPTER II

AT five thousand feet above the limitless stretches of prairie the De Haviland machine, with its " United States Mail Service " neatly painted along the length of its fuselage, was flying steadily. The speedometer needle was flickering on the ninety mark as Jimmy's voice came into Phil's ear-phones.

" Guess if we keep on at this rate we'll be home inside the hour. What do you say, Phil ? "

" You bet," the pilot replied. " If we hadn't stayed so long as the stores at Horseshoe Creek we'd be home still earlier ! Sure you got every-thing ? "

The chums, having finished delivering their mails, had made their usual weekly call at the little township of Horseshoe Creek. Here they were able to obtain their supply of groceries, and any other necessities. Here it was that they had heard further news of The Scarlet Hawk.

" See here, youngsters," one old rancher had said, " I tell you I was sitting jest outside my shack a couple o' sunsets ago an' I saw that Crimson Hawk as clear as I see you. It went over my shack at a good height, mind ye, but not high enough. I could see that it were painted red as the sun itself."

" Which way was it heading ? " Jimmy asked after a pause.

The rancher scratched his head for a moment, then : ' I guess it was sure headin' for the mountains," he said. " But wot's he up to, this hobo ? Eh, answer me that ? "

" That's just what we want to find out," Phil said with a smile. " Anyhow, if he keeps his word, we hope he's going to call on us soon."

" You mean that guy is coming to your shack ? " the rancher said incredulously ; and then his voice became serious. " Look you here, youngsters," he went on, " I've heard tales about this Scarlet Hawk. He can draw a gun quicker than any man in the States, and I guess he's sure got a temper. He's a crook and he gets what he wants."

" Take my advice, youngsters. If The Scarlet Hawk comes to your shack you jest be nice and polite to him."

Phil and Jimmy smiled, though they thanked the old man for his well-meant advice. Then, with nightfall approaching, they had climbed into their machine and made for home—one hundred and twenty miles distant.

The machine had been running smoothly for twenty minutes or so, and Phil was almost allowing the 'plane to fly itself. Then suddenly, without even a moment's warning, the powerful drone of the engine gave way to a series of minor explosions and splutters.

Phil opened the throttle wider, swiftly glancing at the array of instruments before him.

" What's the matter ? " Jimmy's voice came anxiously through the telephones.

" Engine trouble ! " Phil replied curtly, as the machine began to lose height.

Jimmy flung a glance at the miles of prairie stretched out below. He knew only too well what a landing down there would mean, with its hillocks, ravines and a thousand other obstacles.

Phil opened the throttle wider and the engine roared to crescendo. Then the roar turned to an ear-shattering splutter and, next moment, with a last explosion, died into silence. The engine had stopped.

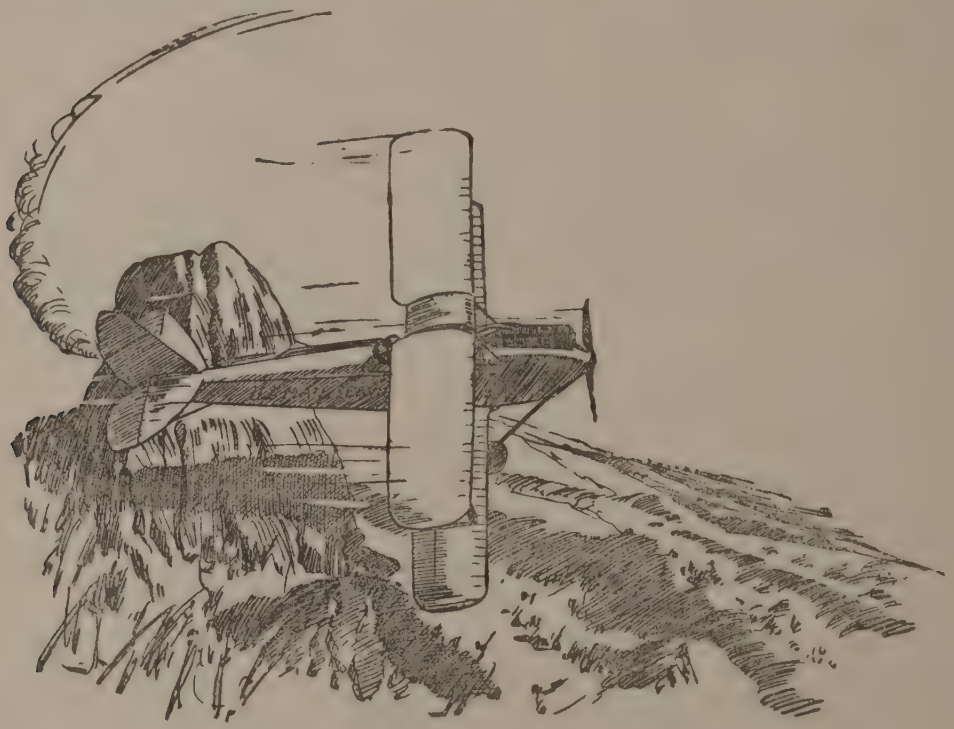
Phil was too experienced a pilot to lose his head under the chill horror that gripped him.

" What's the programme, old man ? " Jimmy's voice came through the telephones, and there was not the suggestion of a tremor.

" We've got to land," the pilot replied, his voice just a little grim. " Keep your eyes skinned for a possible landing ; I doubt if you'll find one,

and I doubt still more whether we'll have the time to make a selection." He laughed shortly.

Jimmy peered over the edge of the cockpit, searching desperately amidst that vast area of obstacles for a clear stretch on which to land. Phil's eyes wandered alternately from the altimeter dial to the air speed indicator. He saw that the machine was slackening to stalling speed, and his hand went to the joy-stick.



The ground came hurtling up towards them.

The nose of the "Moth" dipped. With the wind screaming through the struts, they hurtled towards the earth. The altimeter needle flickered on the three thousand mark and, in answer to Phil's anxious inquiry through the 'phones, Jimmy had to admit that there was still no spot where they might make a landing.

To maintain their speed Phil had to keep the nose of the 'plane down. They were at a thousand feet now, and still there was nothing but the

undulating, boulder-strewn ground beneath. Phil spoke quietly but firmly :

" Better slip your parachute on, Jimmy, and hop over the edge. No need for both of us to get crocked."

Jimmy's reply came just as firm : " Nothing doing, old chap. What's your funeral is mine, too. I'm not quitting ! "

" Good old Jimmy ! " Phil murmured with a smile, but not loud enough for his chum to hear. They were now at five hundred feet, and both were desperately searching the ground beneath. At two hundred feet Phil commenced to circle in the wind ; wondering dully if this was going to be the end, telling himself fiercely that it wasn't.

The ground came hurtling up towards them, ground rugged as a mountain top. Jimmy sat white and tense, his fingers gripping the combing of the cockpit so hard that they drained of blood. But Phil's legs were as steady as any rock as they controlled the rudder bar ; his eyes barely flickered as he watched the ground on which he was going to make his landing.

A hundred, fifty, twenty feet. The undercarriage struck the ground and the machine bumped into the air. The 'plane struck again, skipped wildly across the prairie ; missed a gigantic boulder by inches.

It was coming to a standstill, the chums were breathing a sigh of relief, when, like a thing gone mad, the 'plane suddenly reared itself into the air, dropped back and, with a splintering of woodwork, came to a standstill.

CHAPTER III

" ARE you all right, Phil ? " Jimmy asked anxiously.

" Right as rain," Phil answered cheerfully. " Gee, isn't it wonderful to be alive ? "

Jimmy grinned and climbed out of his cockpit, followed by Phil. It would be exaggeration to say that they looked as calm as ever ; both boys betrayed on their faces the ordeal through which they had just passed.

" And now for the damage," Phil said grimly as he reached the ground. " Don't feel inclined to spend a night out here," and he waved his arm round the prairie with not a single sign of habitation as far as the eye could

see. Then the chums, trying hard to conceal their anxiety, began an examination of the machine.

Phil breathed a sigh of relief as he saw that the propellor was intact, that the fuselage was practically unscratched. Then he looked at the undercarriage, and the splintering of woodwork was explained.

The landing wheels must have struck a boulder as they taxied across the ground, flinging the machine in the air. Fortunately it had come down on those very same wheels, but one of the stays of the undercarriage had snapped beneath the strain.

" Looks as if we're in the jolly old soup ! " said Jimmy, forcing a grin. " How the dickens are we going to take off with the undercarriage damaged like this ? "

" We could never do it," Phil replied quietly. " But if we could make a temporary repair. . . ."

" What made the engine stop in the first place ? " Jimmy asked. " It's never happened before. We thoroughly examine the engine every night."

" You're right," his chum replied. " Anyway, let's see if we can find the cause of the trouble." And together they bent over the engine.

For a few seconds they searched in vain, then suddenly Phil gave a little cry of satisfaction. He gripped the petrol feed pipe and it was loose in his hand.

" Petrol feed pipe broken," he explained to Jimmy. " Funny, it's never happened before, and I'm blessed if I can see how it's happened to-day."

" Unless—" Jimmy began, then suddenly stopped.

" Unless what, you ass ? " Phil asked impatiently.

Jimmy hesitated, then : " Unless The Scarlet Hawk has had anything to do with it," he said.

" The Scarlet Hawk ! " Phil repeated the words in amazement. " You —you mean he's deliberately attempted to kill us ; and there's no denying that but for our amazing luck we'd never have made this forced landing and lived to tell the tale ? You're not serious, Jimmy ? "

" Why not ? " asked Jimmy quietly. " There's the New York mails due in this evening. If we were not there to receive them they would be locked up in our shack. The New York mails are usually worth anything up to a hundred thousand dollars. Supposing The Scarlet Hawk is after them ; remember he's warned us ? "

" Gee ! " Phil gasped, " I'm beginning to see daylight. The crook.

Gradually the distance between the two planes lessened.

Jimmy, we've got to get this 'plane off the ground, somehow. We've got to get back home as fast as the bus has ever flown. Come on, let's get to it ! "

Fortunately for the chums, Phil had always insisted on bringing as much in the way of spare parts as was possible to cram into their 'plane. For, even though it added considerably to the weight of the machine, to be stranded on the prairie might easily mean death.

While Phil was getting a length of piping from the tool compartment, Jimmy had found a strong rope and was busily engaged in lashing together the broken stay of the undercarriage. They barely said a word to each other as they worked against time. Night was approaching, but that was not half so important as the thought that even now The Scarlet Hawk might be ransacking the precious mails.

Within a quarter of an hour, with a sigh of satisfaction, Jimmy was gazing at his handiwork. The lashing would probably suffice to get the machine off the ground, Jimmy reckoned. He didn't care to think of what might happen when they made a landing again.

Another ten minutes and Phil, liberally smothered with grease, tightened the last nut and flung his tools into the 'plane. One last critical glance over the machine, and then :

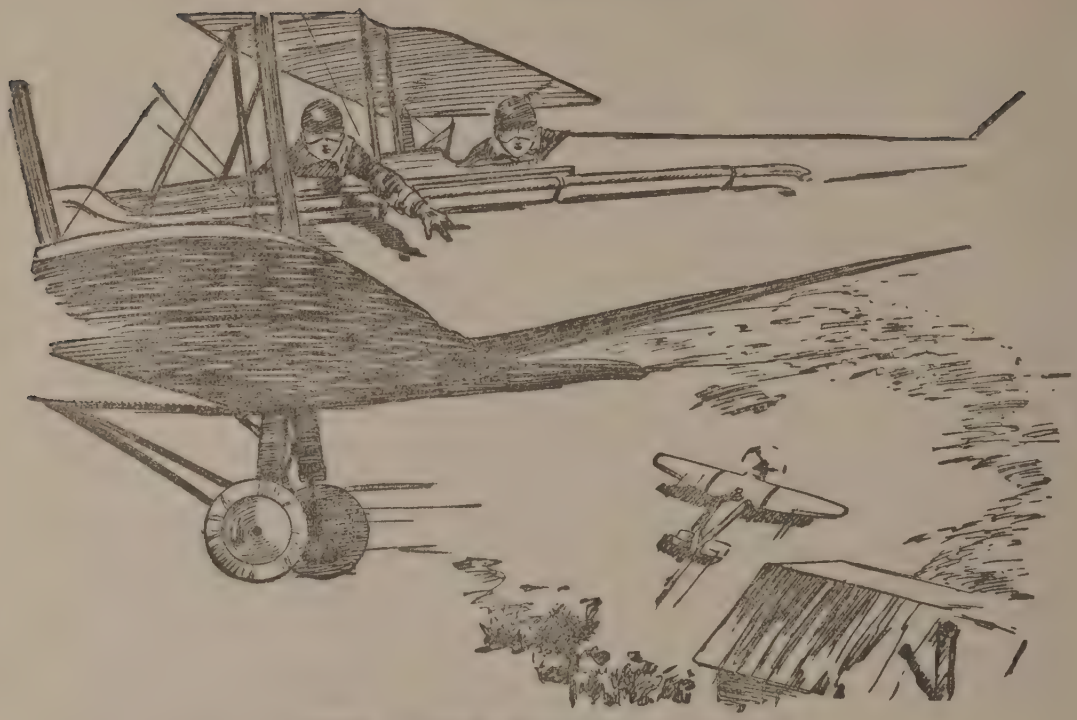
" Ready ? " he asked tersely, and quickly climbed into his cockpit.

Even while Phil was coaxing the engine into life, Jimmy had hopped nimbly into the 'plane, and was waiting anxiously to see whether his lashing would stand the strain. The engine broke into a gentle drone ; Phil opened the throttle wider and the drone grew to a roar.

Slowly the " Moth " taxied over the rough ground, the engine's song rose to a high-pitched thunder and, with a thrill, Jimmy realised that they were in the air once more.

Phil climbed steeply, rising in a spiral, the nose of the machine pointed heavenwards. At a thousand feet he commenced to flatten out, opening the throttle even wider. The needle of the speedometer flickered on the eighty mark, moved round to eighty-five and then ninety. And with the nose of the " Moth " pointed towards home, the chums hurtled through the air at ninety-five miles an hour.

The crimson rim of the sun had sunk below the distant foothills and Phil reckoned that if all went well they would be circling over their shack and hangar within half-an-hour. The engine had risen to a terrific roar ; the wind screamed through the stays and struts as the needle of the speedometer trembled near the hundred mark.



"Phil! Look! the Scarlet Hawk!" he cried.

To Jimmy, sitting in the cockpit behind, the minutes passed on leaden wings. His eyes were strained with watching for the first sight of their shack. Sometimes he thought of The Scarlet Hawk, and at those moments his jaw squared and the fighting gleam came into his eyes. Not for nothing had Jimmy been light-weight champion of his school.

"There it is!" Jimmy shouted suddenly through the telephones. "The shack, Phil; just below!"

Phil looked over the cockpit combing, saw the shack through the fast-gathering darkness, and banked steeply. Then, as the machine swung round on its side, Jimmy saw something else.

"Phil! Phil!" he cried urgently. "Look, look! The Scarlet Hawk!"

The pilot thrust the joystick forward and, as the nose of the machine dipped towards the ground, he took a glance beneath. Jimmy was right! Phil's hand tightened on the joystick as he saw, taxi-ing along the ground by the shack, an aeroplane, its wings and fuselage painted a brilliant scarlet.

Quick as lightning Phil switched off the engine and, with no sound save the screaming of the wind in the wires, they hurtled downwards at nearly one hundred miles an hour.

Jimmy gazing anxiously over the edge of the cockpit, thought for a moment that The Scarlet Hawk had already ransacked the mails—was even then preparing to take off. Then, as he saw the machine below come to a standstill and a doll-like figure emerge from the cockpit, he realised how cunning was the brain of The Scarlet Hawk.

He had laid his plans carefully. He had known that the chums would make their weekly call at Horseshoe Creek, would not return until evening. What easier than to crock their 'plane so that even if the chums were not killed in the crash they could not return before nightfall. In the meantime he would make his haul and, as the first stars appeared, would get away across the border into Canada. Clever, fiendishly clever.

As the " Moth " hurtled lower the actions of The Scarlet Hawk became more distinct, even in the growing darkness. At a thousand feet they saw him hurrying across the intervening ground towards the shack. At five hundred feet he was tampering with the door.

Phil switched on the engine of his 'plane and, with the crackling thunder of pent-up energy, the engine roared into life as the pilot prepared to land. At that moment, as the chums knew he would, The Scarlet Hawk flung a startled glance upward.

For a second he hesitated, then he ran swiftly across the ground to his machine as he saw the " Moth " come skipping over the ground towards him.

The " Moth " came to a standstill and simultaneously the chums sprang from their cockpits and hurled themselves forward. They were twenty yards away when the man in the scarlet flying kit and goggles climbed hastily into his machine.

As the boys heard the powerful engine thunder into life they sprinted with a last despairing effort. Phil was not more than half a dozen yards from the tail when the machine started across the ground. The chums came to a standstill, trying to stifle their bitter disappointment.

" Never mind, Jimmy," Phil said, forcing a smile. " He hasn't got the mails, and we're going to get him."

As they looked at the bandit 'plane rising into the air, The Scarlet Hawk turned, his gloved hand waving an insolent farewell.

CHAPTER IV

" Do you reckon that's the last we'll see of him, Phil ? " Jimmy was asking at the breakfast table next morning. " You know, I reckon we gave him a pretty bad scare."

Phil smiled gravely. " If all that we've heard about The Scarlet Hawk is true, then I reckon it will take a lot more than last night's little affair to scare him. You take my word for it, we haven't heard the last of The Scarlet Hawk by a long way. He'll come again and it's up to us to see that he doesn't have things his own way. Anyhow, we've got a busy day in front of us; there's that undercarriage stay to be properly repaired. . . ."

Jimmy looked pained. " Well——"

" Oh, sorry, old man ! " Phil said with a grin. " But you know what I mean; you made a jolly good job of it but we must make it more permanent."

Jimmy smiled. " Of course, just my little joke and all that sort of thing. Well, let's go into the hangar and get on with it. If we finish by mid-day we ought to be able to get some of the New York mails out this afternoon. Too much like tempting The Scarlet Hawk with these things hanging around." He indicated the sack standing in the corner with its " United States Mail Service " printed on the canvas.

The chums spent several busy hours on the 'plane. They made what Phil described as a " permanent " job of the broken undercarriage stay, and then they turned their attention to the engine. Phil never believed in leaving things "till to-morrow." He knew that it doesn't pay to neglect a flying machine

At last, after five hours of steady work, Phil announced that they were ready to give the machine a trial spin, " just to see that everything was O.K."

Hop into the shack and get our goggles," Phil asked his chum. " We won't go far, just up and down again. We ought to have started with those New York mails hours ago."

Jimmy ran off to the shack. He flung open the door and entered. His hands were just snatching the goggles from the table when something made him look up. Next moment the goggles were forgotten as he found himself

staring down the barrel of a revolver held in a hand that wavered not a fraction of an inch.

" Stretch your mitts to the ceiling—and quick ! " a voice hissed. Jimmy, not because he was afraid, but because he was no fool, silently obeyed.

The barrel of the revolver fascinated him, the long dark passage through which at any moment a bullet might hurtle. He tore his eyes from the gun and looked at the man who held it. A man dressed in red leather jacket and leggings, a red flying helmet on his head and goggles over his eyes—The Scarlet Hawk !

" What do you want ? " Jimmy asked, desperately trying to appear unconcerned. But he didn't have to wait for an answer as he saw the opened sack of New York mails behind the bandit, saw the bundle of registered letters that had already been taken from the bag.

" Get a move on, Jimmy ! " It was Phil calling to his chum, unaware that danger threatened. Jimmy heard his pal throw down a spanner and come towards the open door of the shack. He opened his mouth to shout a warning, and as quickly closed it again as the barrel of the revolver was jabbed uncomfortably into the pit of his stomach.

" Hurry up, old man ; we'll never get started to-day. What ? . . ." Phil's voice trailed off into a gasp of dismay.

" Shove 'em up, Britisher, before I bore a hole in you."

Look here, you can't. . . ."

Phil stopped talking and his hands shot up towards the roof as a bullet smacked into the wooden wall approximately one-eighth of an inch away from his right ear.

" I guess I can do all the talking that's necessary," The Scarlet Hawk said impatiently. " And before you start interrupting, jest you remember that this lil' gun of mine is liable to go off. I get a kind of itchin' feeling in my trigger finger when anybody else starts gassing. Get me ? "

The chums " got him," inasmuch that for the moment they decided to remain silent. They looked meaningly at each other and there was grim determination on their faces. Each flashed a message to the other that The Scarlet Hawk would never be allowed to escape with the mails.

But strangely enough neither worried about the money side of the robbery. They thought of Uncle Erasmus ; that day when Uncle Erasmus had first given them their chance. He had been doubtful then, doubtful whether a couple of Britishers—mere boys—could hold their own in that lonely outpost. It was a man's work, and Uncle Erasmus had lived too long in

" Stretch your mitts to the ceiling," a voice hissed.

America not to feel that the best men for big jobs are Americans. A hundred thousand dollars was nothing when the chums thought of going back to Uncle Erasmus and admitting that they had allowed one man to rob them.

Phil clenched his fists and half-lowered his arms, then thought better of it. The Scarlet Hawk mustn't get away with the mails.

" I guess I've warned you guys," the bandit said, eyeing the chums narrowly. " I've meant to have these mails for a long time, and now I'm getting them. If you've got any fool notions about doing the heroic stuff and turning the tables, forget 'em. It's a short cut to the graveyard. Now jest you step over into that corner where I can see while I'm finishing off this little job. And, remember, no hanky-panky tricks."

The chums stepped back to the far corner of the shack, forced to stand there while the bandit, with cool insolence, proceeded to search for more registered packages in the sacks of mails.

Phil was looking at him curiously, trying to catch a glimpse of his face. At last he had to admit that The Scarlet Hawk might be anybody. With his thick leather clothing, the helmet and the goggles he might be bearded or clean-shaven, fat or thin.

At last the bandit finished his task. He emptied the general mail from the sack on to the floor, stuffing the registered packages in their place. Then he turned to the boys, the sack of mails in one hand the revolver held steadily in the other.

He glanced round the shack with approval and said, " I guess this will suit me fine ; nice solid timber walls, one door with a strong lock, two windows, but not large enough to get through. I guess you must have had this shack built specially for me ! "

The chums said not a word ; but they wondered what was at the back of the man's mind. They were soon to find out.

The bandit backed towards the solitary door and, as the chums made to move forward a pace, he menaced them with the revolver. He put the sack of mails on the floor as his hand groped for the key in the door and took it out. Then he paused.

" I guess this is my lucky day," he said. " This guy here "—and he indicated Jimmy—" sure gave me a fright when he blew in. I landed my 'plane a mile away, over behind the timber. I calculated that you'd have been out on some of your deliveries. Funny I didn't hear you about. You sure gave me a fright, but I guess it's my lucky day."

He opened the door, the gun still pointing rigidly at the chums.

" Say, kids, think of me to-morrow when you're trying to explain what's happened to the New York registered mails. Jest you think of me, all happy and comfortable, spending a hundred thousand dollars across the border ! Bye-bye ! "

The door slammed behind him ; before the chums had moved a yard they heard the key turn in the lock, heard a last mocking laugh.

CHAPTER V.

PHIL flew to the window which stood nearest the direction of the little patch of timber over the rise. He saw The Scarlet Hawk hurrying away, the sack of mail gripped in his hand. Phil joined Jimmy in trying to force open the door.

But they tugged and heaved in vain. The shack had been built to house valuable mails, strong enough to withstand an onslaught. The small windows, the solid timber walls ; the chums looked at them in despair.

" Phil, the gun ! "

Jimmy suddenly left the door and pulled out a tin trunk that stood under his bed.

" Gee, why didn't we think of it before ! " Phil gasped. " Quickly, Jimmy ! No time to waste ! "

They flung open the lid of the trunk, tumbled out the blankets and spare kits, until right at the bottom, they found the revolver that Uncle Erasmus had insisted they should take with them.

" Ammunition ! "

" Here ! " Jimmy gasped, opening a tobacco tin and pouring half a dozen bullets into Phil's palm.

Feverishly, Phil loaded the six chambers of the revolver. A second later he had crossed to the door.

" Mind the flying bits ! " he warned and, next moment, there was a deafening explosion as the lock of the door was blown to fragments. Coughing and choking in the cloud of smoke, their ears ringing with the force of the explosion, the chums stumbled out of the shack into the open.

They ran across the ground to the hangar, Phil praying desperately that the bandit had not tampered with the machine, then remembering that he had not had time. They flung open the wide doors of the hangar.

It seemed hours before they had wheeled the 'plane out on to the open ground. Then they tumbled into the cockpits.

A shattering roar, a sudden leap forward, and the machine was careering across the ground, rising into the air. Phil flung the throttle wide open, turning the nose of the 'plane towards the trees over the rise.

Jimmy was looking around anxiously, wondering whether The Scarlet Hawk had taken to the air. And then, not a half-a-mile in front of them, he saw the red 'plane suddenly shoot up from over the rise, climbing steeply in a spiral.

" There he is, Phil ! " Jimmy shouted into the telephones. " After him, Phil ! Don't let him get away ! "

" He won't, don't you worry ! " Phil answered grimly. " We'll either get those mails, or else Uncle Erasmus won't have anybody to grumble at."

Phil edged the joystick towards him, thrusting the nose of the " Moth "

towards the sky. The Scarlet Hawk was now well above them and flattening out, making for the Canadian border.

Phil climbed higher, and though he lost distance by the manœuvre felt confident that he would make it up. He knew enough about aerial warfare to know that it is height that counts every time.

They were now flying at three thousand feet, the speedometer showing a speed of ninety-five miles an hour. Phil was coaxing every available ounce out of the " Moth," and he thanked his lucky stars that he had kept the engine in trim. The Scarlet Hawk was not getting away from them, he was certain of that ; but then he was not so sure that they were gaining on the bandit of the air.

Ten minutes passed and Jimmy, who had been crouching tensely in the rear cockpit, spoke through the 'phones, " I believe we're gaining, Phil ! Keep it up, old man ! "

Phil made some sort of reply, but his attention was directed on over-hauling the other 'plane. He'd got to do it, somehow. And yet, strangely enough, as he sat there scanning the dashboard anxiously, he thought of what his life might have been. As the thunder of the engine rang in his ears, as the wind screamed and howled as it rushed through the wires of the planes, he thought of himself perched on an office stool in London, the eternal ledgers in front of him.

This was adventure indeed !

They were gaining on The Scarlet Hawk, Phil felt sure of it now. The two machines could not be more than three or four hundred yards apart. Phil juggled with the controls, striving for that extra ounce of power—and he got it ! The speedometer needle flickered further round the dial, touching the hundred mark.

Foot by foot, it seemed to the two chums, they steadily gained on the bandit 'plane. Another ten minutes passed and the " Moth," although fifty feet higher, was not more than a hundred yards behind the other's tail.

And then came the problem—what next ? How were they going to get The Scarlet Hawk to the ground ; he was obviously too experienced a pilot to be frightened into landing by mere aerobatics. Then Phil remembered the revolver.

He raised the mouthpiece of his telephone : " Jimmy, here's the revolver; you were reckoned a crack shot at school. Do you reckon you could hit the other 'plane without putting a bullet through The Scarlet Hawk ? "

Jimmy grinned. " Well, I might hit him," he said, " but I'll try not to ! "

Capturing a burglar was one thing ; cold-blooded murder another. The Scarlet Hawk had a gun, though Phil, had to admit, but that he could aim at them and control his machine at the same time was an impossibility.

The hundred yards lessened to eighty, and Phil suddenly started as there came a *crack* from just behind him. Jimmy had got going !

The tail of the " moth " was suddenly flung skywards as the nose buried itself in the ground.

The Scarlet Hawk flung a glance behind him, so Jimmy judged that his bullet had not gone far off the mark. Again the revolver barked and this time a rent appeared in the canvas of the fuselage. The Scarlet Hawk was being paid back in his own coin.

Despite himself Phil could not help feeling thrilled at it all, serious as the situation was. Hurtling through the air at a hundred miles an hour and three thousand feet above the rolling prairie ; the thunder of the

engine ; the shrill screaming of the wind and, finally, the staccato explosions of the gun.

Again Jimmy fired and this time a little cry of satisfaction escaped his lips. He had aimed at the nose of the red machine, just in front of the pilot's cockpit, and if proof were needed that his shot had taken effect it was quickly forthcoming. The red machine seemed to waver in the air, the roar of its engine dying into a series of explosions.

" Got him ! " Jimmy shouted excitedly, and there was no doubt that The Scarlet Hawk was being compelled to make a landing.

The nose of the red machine dipped, and the 'plane started to descend in wide spirals. Phil pushed the joystick forward and zoomed down in the wake of the crippled machine. At five hundred feet Phil smiled grimly as he saw the bandit searching desperately for a suitable landing.

Phil's attention was taken up now with making a landing himself, but Jimmy watched fascinatedly the red machine as its undercarriage struck the ground. The machine bumped badly and then taxied unsteadily to a standstill. Jimmy gripped the revolver as he saw the Scarlet Hawk spring out of his cockpit.

" Hold tight, I'm landing ! " Phil's voice came through the telephones.

The 'plane bumped the ground lightly, bumped again as it sped across the ground at forty miles an hour. Another bump, followed almost immediately by the splintering of woodwork as Phil's " permanent " repair collapsed under the strain.

The tail of the " Moth " was suddenly flung skywards, the propellor struck the earth and snapped off clean as the nose buried itself into the ground.

Jimmy, still clasping the revolver remembered being flung from the cockpit ; had a momentary glimpse of the 'plane smashed and broken, and then a sudden shock and blackness. . . .

CHAPTER VI

PHIL HARDING and Jimmy Payne had had many surprises in their young lives, but never anything to equal their surprise as they regained consciousness. Jimmy was the first to open his eyes, and for a moment he wondered vaguely whether he really *was* alive. For his flying helmet and

goggles had been removed and his brow was being bathed by gentle hands —the hands of The Scarlet Hawk.

When he saw that Jimmy had regained consciousness he crossed to where Phil was lying senseless. He repeated the performance with him until he, too, opened his eyes—and stared. Jimmy was sitting up dazedly, telling himself that he was mad—but knowing full well that he wasn't!

"The Scarlet Hawk!" Phil said, sitting up. "What's the game. Why haven't you made your getaway?"

The Scarlet Hawk suddenly whipped off his goggles and flying helmet —and Jimmy told himself again that he was mad, and really began to believe it. For the man who stood there in his red leather jacket and leggings was Uncle Erasmus; Uncle Erasmus with his kindly, twinkling eyes. Uncle Erasmus smiling down at them!

"Oh, my hat!" Jimmy groaned, "I've gone crackers, bats in the belfry!"

"Guess you're wrong on that count," Uncle Erasmus said with a laugh —and it really was Uncle Erasmus's voice!

Phil rose unsteadily to his feet, while Jimmy sat and held his head.

"I say, sir," Phil asked, "what exactly does it all mean? "You—The Scarlet Hawk. . . ."

"I reckon I've made a mistake," Uncle Erasmus said, and this time he was grave. "Somehow I kind of thought you youngsters hadn't much pep; all right when things were sailing smoothly but you'd lose your heads in an emergency.

"And then I heard this talk about The Scarlet Hawk, and I guess that put an idea into my head. I hankered on robbing you of the mails, jest to prove that it needs an American to do the work I gave you. But I guess I made a mistake," Uncle Erasmus finished heavily.

"Then you didn't meddle with our petrol feed pipe yesterday?" Phil asked. "We blamed that on to The Scarlet Hawk."

Uncle Erasmus shook his head. "Not me," he said. "I guess I only wanted to make you look plumb silly. I wasn't hankering to kill you."

Jimmy looked at the wreckage of their machine and smiled. "Reckon that was a near thing, Uncle," he said.

"I guess if you youngsters had been killed, I'd never have forgiven myself," he said gravely. Then: "But I reckon those bullets you were firing at me makes us quits!" And he smiled.

"But what do you mean sir," Phil asked after a pause, "when you

spoke about The Scarlet Hawk giving you the idea. If you were The Scarlet Hawk how did you hear about him before hand ? "

Uncle Erasmus smiled. " That brilliant red machine that all the ranchers have been getting so excited about is really quite harmless. As a matter of fact, up to a week ago it was nothing but a new machine on its trials. I'm starting a new trans-continental air express service, and that red machine which has been named The Scarlet Hawk is the type of 'plane I am using. I guess you don't want to believe all the stories you hear in the West," he said smilingly.

" And now, if you youngsters are feeling fit, we'll get back to the shack ; you ought to be able to crowd into my machine. But before we start I want to ask you both a question."

" What is it, Uncle ? " Jimmy asked, trying to read the expression on his face.

" Will you both be Scarlet Hawks—flying a scarlet 'plane in the new trans-continental mail service ? "

You ought to know Phil and Jimmy by this time, so there is no need to give their answer.

Safe Aircraft

By F. HANDLEY PAGE

TO watch an aeroplane take off from a flying ground and soar away into the air, rising all the time, until it becomes but a speck in the distance, makes one feel that we are indeed nearing perfection in flying. We have not yet reached our goal, but accidents are becoming gradually fewer. They unfortunately still occur ; but as time goes by new inventions will surely be forthcoming to give even greater safety—and safety we must have at all costs.

An ocean liner whose engines fail in mid-ocean is not in danger of sinking. She will float while her engineers set to work to repair the damage. A motor-car whose engine breaks down merely comes to a stop. In both cases a degree of safety is assured.

But when the engine of an aeroplane fails the law of gravity demands that the machine shall come down, and then, although the natural self-balancing qualities of a modern aeroplane would cause it to glide safely to earth, the pilot has often to consider landing in a small enclosed space, an operation calling for a high degree of skill in piloting.

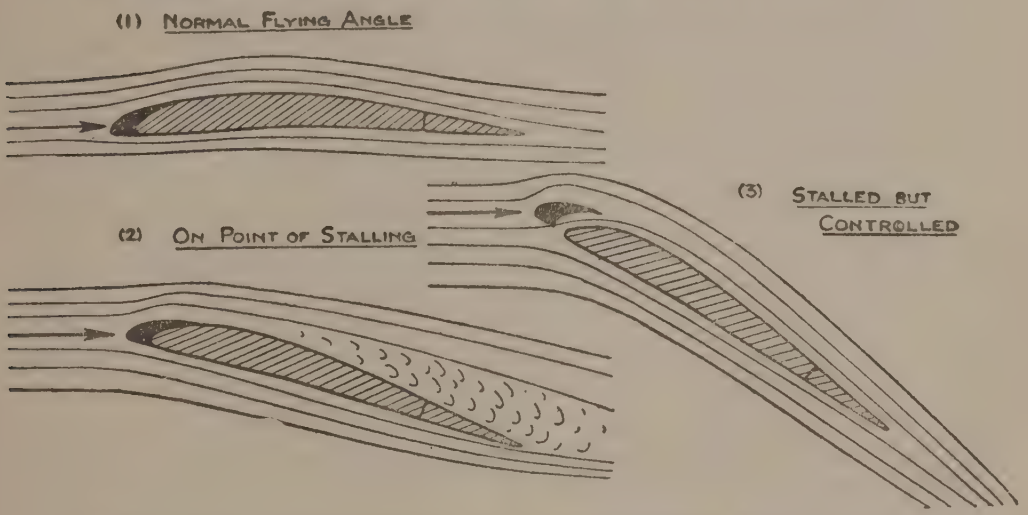
Much has been and is being done for the improvement of aircraft engines to make them as reliable as humanly possible, but they are not perfect yet, and engine failure is by no means uncommon. Much has also been done to make the aeroplanes themselves safe in the air, but they have hitherto not been faultless, since several causes, slight perhaps in themselves, may easily result in accident, in spite of all the pilot's skill.

The most common cause of aeroplane accidents in the past has been the pilot's lack of control over the machine when its speed falls too low. You must understand that there is a certain speed below which an aeroplane cannot be controlled by its pilot, however skilful. The air in which it moves no longer supports it and it has to fall. This loss of speed is technically called " stalling," and it has been the cause of about 80 per cent. of the aircraft accidents in the past.

The firm of Handley Page, Ltd. has devoted much time and study to the causes of accidents and now, after ten years' research work, has devised a means of avoiding the dangers brought about by the dreaded stalling.

This invention takes the form of two tiny winglets fitted to the front edge of the upper wings of the aeroplane, one on each wing tip, arranged so that they will either lie flush with the wings, forming part of their ordinary shape, or move away slightly, leaving a small space, or *slot*, between them and the front of the wings, and this device is called the Handley Page Automatic Slot.

The sketches will help you to understand just how it works.



Why it works.—A diagrammatic idea of the operation of the automatic slot.

Figure 1 shows the cross section (that is, a side view) of the upper wing, to which the slot is fitted. The little black part in the sketch is the winglet and it is shown flush with the wing as it would be when the aeroplane is flying level, because the pressure of the wind caused by the speed of the machine keeps it pressed back as shown. The arrow indicates the direction of the air meeting the 'plane, as the 'plane flies through the air.

Now the greater part (about two-thirds) of the " lift " given by the air to the wings is due to the suction effect of the air on top of them, and the first sketch shows the air flowing smoothly by and therefore enabling the wing to give its greatest lifting force.

In Figure 2 the wing is shown at a greater angle to the line of flight, and the air stream is not now flowing smoothly but is beginning to become irregular and break away from the all-important upper surface (the winglet in front still being close to the main wing). Now you will understand that

if the angle be increased still more the airflow would be further disturbed and all the lift usually given by the top surface of the wing would be lost, so that the aeroplane would then begin to fall.

This is where the Handley Page slot begins to work. As the angle increases the winglet moves by itself away from the main wing (thus forming the slot) and a stream of air flows through from underneath, smoothing out the irregular, eddying air above and thus restoring an even airflow, as shown in Figure 3. Here, the slot is drawn in the open position and the wing moves along smoothly again, the maximum amount of lift being given by its upper surface.

In practice, the failure, or partial failure of the engine, accidentally making the nose of the aeroplane rise too much while travelling slowly, or making a climbing turn, may easily cause stalling. The effect in these cases is that the pilot no longer has control over the machine, which commences to fall, nose first, or drop one wing and usually also commences to spin. This state of affairs cannot be checked until sufficient speed has been gained in the dive for the pilot to be able to control his aeroplane once more. From this you will easily understand that if the machine is not high enough in the air when it stalls, it must dive into the ground before it is going fast enough for the pilot to take control once more. A crash will result, from which the occupants of the machine will be very lucky to escape with their lives.

The case is very different, however, with aircraft fitted with slots. After stalling there is no nose-dive ; the aeroplane merely comes down slowly on a level and the pilot, having control, is then able to land safely, after gently gliding down to earth.

There are, too, other advantages which the slots give, one very important one being that the speed at which a slotted machine lands is much less than it would be without slots, and, in consequence, an aeroplane can pull up after a shorter run. Some time ago some pilots from a Royal Air Force station on the East Coast of England had to land in an emergency on a shingle beach. As soon as their wheels touched the ground they sank in, owing to the machines' high speed, and the aeroplanes went over on their noses, turning completely over and imprisoning their occupants. Had an outbreak of fire occurred (a very real possibility in such a case) the result is quite obvious. Slotted wings would have reduced their landing speed so much that they would not have capsized at all.

This shortening of the length of the run needed on landing is of extreme

T.A. *By courtesy of Flight.*

No. 43 Fighter Squadron of Armstrong-Whitworth Siskins
"in flights astern."

value where a pilot has to make a forced landing, owing, perhaps, to engine failure, shortage of petrol, or some other emergency. If he should be some distance from his aerodrome above country where there are many trees, or only tiny fields, he will be in a difficult position, since, if the space in which he will land is not large enough, he will crash into whatever may be in front of him (trees, or a hedge or fence) before his aeroplane comes to a stop. Now, assuming he has a modern machine with slotted wings, the distance it must roll on landing will be shorter, so that he will be able to land in safety in a small field.

Imperial Airways, Ltd., the safest passenger air service in the world—it has not had a single fatal accident to any of its passengers since 1925—uses many Handley Page aeroplanes and has now ordered all its new machines to be fitted with slots. Many aircraft manufacturing companies have followed suit. Slotted aircraft are now flying all over the world and the British Government has just agreed to pay Handley Page, Ltd., £100,000 for the rights of the slotted wing invention on all aircraft in the Royal Air Force.

In the Handley Page works a notice is displayed—"Makeshifts Make Accidents—Take No Chances"—as a warning to the staff in their use of the different machines employed there. This motto is also adopted in the use of the aeroplanes themselves. The invention of the slotted wing is an excellent example of this, so that you may now ride in an aeroplane with as much confidence as you ride in your father's motor-car.

Present-day aircraft are amazingly efficient, thanks largely to the useful slot, and it is quite safe to say that in a little while the aircraft without slots will be looked upon as dangerous and out-of-date.

Croydon—The Air Port of London

Wonders of The World's Greatest Aerodrome

By R. T. NORTON

IF it were not that magic carpets are now out-of-date, I would invite you to accompany me on one of them over Croydon. Instead, if you will Close your eyes for a few seconds and imagine that you are seated in the cabin of a giant Continental air-liner, you will have a much better view and be far more comfortable!

Looking out of the window, in the fuselage of the huge Imperial Airways machine, we see the world's greatest air port stretched out beneath us.

As our machine comes lower we see written in huge letters across the aerodrome the single word "CROYDON." Our pilot swings the machine lower, skimming over the flat-roofed buildings, the whole of which cost more than a quarter of a million pounds to build.

We see the green grass on the landing field coming up to meet us, yet so skilful is our pilot that we hardly know that we have reached the ground until we feel the 'plane drawing to a standstill. And now comes the question —where shall we go first? That tall tower over there?

We walk to the fifty-foot high control tower, rising from the centre of the main building. The tower consists of a room, fitted with large glass windows and surrounded by a gallery, and is so situated that it commands an uninterrupted view of the whole aerodrome and its approaches. It is from here that all the flying activities of the aerodrome, and not only the aerodrome, but all the machines on the air routes to Croydon, are under control.

It is from the control tower that permission is received before a machine can take off or land, and at night-time all the various lights of the aerodrome and the aircraft, that are in the vicinity, are controlled by the man who is doing duty in the tower. Perhaps you did not know that the whole time a cross-Channel machine is making for Croydon its movements are known

to the Aerodrome Officer on duty, who is, of course, helped by radio operators and a look-out on the gallery outside the tower.

The Aerodrome Officer has before him a large scale map of the different air routes, and the positions of the various machines on these routes are indicated by little flags. You may wonder why it is so important to know where the aeroplanes are, whether a particular liner is crossing the Channel or has already reached the coast. When the weather is foggy, and pilots cannot see before or below them, can you imagine what would happen if

The control room.

two of these giant air liners hurtling through the air at over a hundred miles an hour, came into collision ? That is where the man in the control tower proves his worth. He is able to see at a glance whether two machines are getting dangerously close to each other and, if necessary, he warns them by wireless.

As we leave the control tower we notice above it the wireless directional moat, part of the apparatus which enables the Aerodrome Officer to find the positions of the various machines.

Presently we come to the hangars, each of which will comfortably house thirty-five giant air liners. After we have feasted our eyes on the wonder machines inside, we cross to the large booking hall in the main building. Here we can get time-tables for aeroplanes to practically every part of of the world. If we should want to go to Barcelona we could pick up the necessary time-table which would tell us which 'plane to catch and at what time, where to change, and so on.

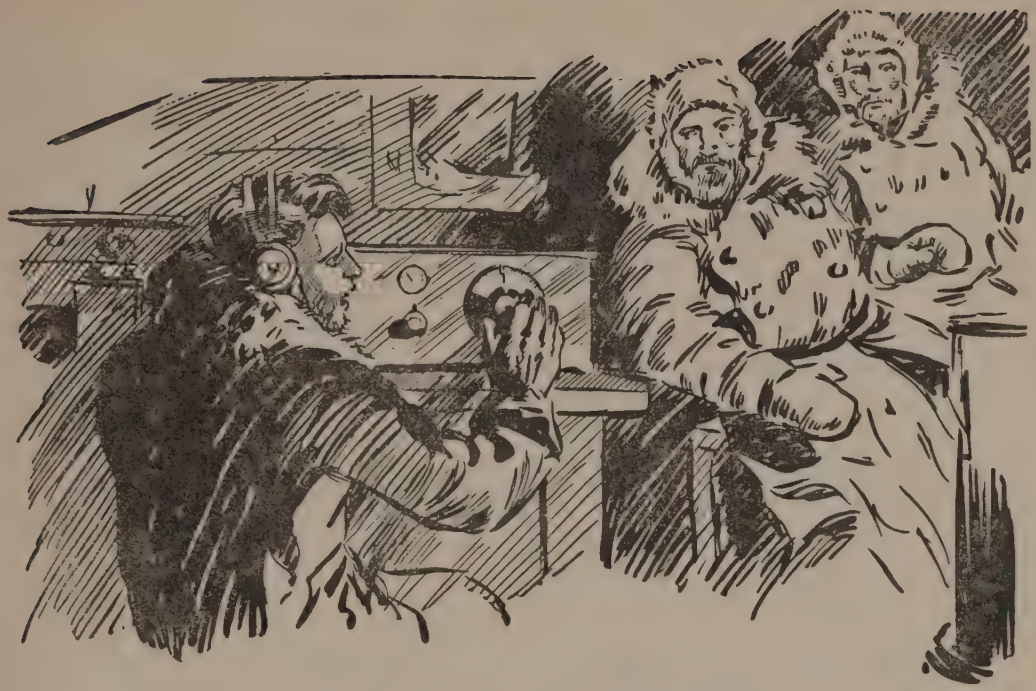
It is in the booking hall that the weather reports are posted on a large map of north-west Europe. The reports are changed every three hours, so that at any time we can get all the weather information, including barometric pressure, temperature and humidity—these are useful for forecasting the weather—and observations of the speed and direction of the wind at different heights.

And now let us leave the booking hall, and go outside again. Gee, hasn't the time passed quickly ! It is dark already. But Croydon Aerodrome at night is a scene that we shall never forget. The entire aerodrome is bathed in the weird red glow of the 6,000 candle-power fog-piercing light. In reality it is an aerial light-house, enabling approaching aeroplanes to locate the aerodrome when they are miles away. White light cannot be seen easily from the air, and so it was decided that the red light should be installed at the aerodrome. This light can be seen ordinarily from a distance of forty-five miles, but, under favourable conditions, the light has a range of eighty miles !

Small red lights shine from the boundaries of all the buildings in order to safeguard pilots from crashing into any of the structures when landing at night.

A huge floodlight has been installed recently, and some idea of its size is obtained when we learn that it is mounted on a thirty horse-power tender to enable it to be moved into any position. To see the powerful one million candle-power beam sweeping the sky above the aerodrome is an unforgetable sight.

At the boundaries of the aerodrome are still more red lights. The whole scene seems unreal. Everywhere there are lights. But they all tell the air pilot things he wants to know, when he glides down after his flight from Paris or Brussels, or at the conclusion of the last stage of his journey with mails from far-off India.



The Snow-Call!

A Tale of an Aerial Arctic Expedition: Of Treachery and Bravery above the White Snow-wastes.

By REGINALD H. CLARK

"SILENCE, you chaps—shut up there a minute!"

Tom Petty, with the headphones to his ears, strained his ear-drums to catch the signal that was coming through on the buzzing, spitting wireless receiving set. Before him on a packing case on which he was sitting was a small note-book, open, on a page of which he was writing:—

s-t-r-a-n-d-e-d—n-e-a-r—j-o-h-n-s-o-n-s—h-e-a-d—s-e-n-d—h-e-l-p—f-r-e-s-h—p-r-o-p-e-l-l-e-r—d-i-g-b-y

The buzzing suddenly stopped and, his face clouded with anxiety, young Tom Petty turned to the three or four other fur-clad men huddled around the guttering, sizzling combustion stove throwing out a penchant

smell of burning whale blubber. All were muffled up to their eyes, even wearing big, fur gloves and it was impossible to distinguish the elderly from the young men, for all were heavily bearded. Even young Tom Petty, the " baby " of the Digby Expedition, had a heavy growth of hair on his face. But this did not mask the puzzled, worried expression on his face as he crossed to the other men.

" Here's trouble," he said in a husky voice, made hoarse through ceaseless tracking among the snowy wastes of the South Pole. " The boss is stranded, wants help."

In a moment the men jumped to their feet and bent over the sheet of notepaper the youngster held in his gloved hand. Their eyes opened wide with anxiety.

" Gee, that's bad," said Dan Jones, the cook to the party.

" It sure is," put in Sammy Taylor, the second engineer. " And it looks to me as if it'll be a long time before he gets help. The 'plane couldn't go up in this weather. It's snowing worse an' worse every minute."

" But we must send help at once," exclaimed young Tom, bridling up at the engineer's tone. "The boss may die out there; besides you know what this expedition means to him."

" Oh, you shut up, youngster, leave it to us older fellows who've had a bit of experience."

The last speaker was Roger Grey, a dark, evil-faced man of about forty, whose coarse lips parted in a leer as he spoke. He was second in command of the party and it was easily to be seen that he was not on the best of terms with Colonel Digby, the leader of this expedition.

It was not like the usual polar expedition to discover uncharted lands and seas in the arctic regions. Colonel Digby had financed and conditioned the party with a view to photographing ice scenes and nature's wonders for a noted film company. The rights of this film when completed would mean a large sum of money to the retired colonel, money which he needed very badly to finance an expedition to the wildest African jungle.

For some weeks, however, the members of the expedition had realised Roger Grey's hostility to his boss, Colonel Digby. And although young Tom Petty failed to understand it, the other men knew that Grey was waiting for a chance to take the films, make his getaway with them, and to take the enormous sum of money that was to come to Colonel Digby when the final reel of film was exposed.

THE SNOW-CALL!

That reel was being exposed that day about fifty miles to the south-east.

Colonel Digby had left the little encampment the previous day in the expedition's largest 'plane with two men, his engineer and a photographer. They had left in brilliant sunshine with a prospect of several days of fine, clear weather. But a few hours after they had left, the wind had veered round and a fierce blizzard had sprung up. It was this that had caused the remaining members of the arctic party to crowd round the blubber fire in the small canvas tent.

" Here, I say, you chaps," said Tom Petty again after a short silence, while men were lighting their pipes, " do you mean to say you're not going to take any notice of this message ? D'you think——"

Suddenly a fierce spitting and buzzing emerged from the wireless receiver rigged up at one side of the tent. With a bound Tom had adjusted the earphones and was soon listening intently

s-n-o-w-e-d—u-p—p-e-t-e-r—b-a-d—d-o-n-t—d-e-l-a-y.

The youngster flung down the headphones and pulled on his gloves again.

" It was the boss again," he cried, the men standing around seeming to take little notice. " It's serious—he needs help badly. And I'm going——"

" You're not ! " snapped Roger Grey, his dark eyes flashing.

" Oh, and who's to stop me ? " asked Tom, his fists clenching in his big gloves. " I tell you if you're all too big cowards to come, then I'll go alone."

His words were greeted with a sneering laugh from Roger Grey, as he pulled a box near to the rough table and sat down, lighting the tallow candles, as the snow was causing the sky to darken slowly.

" You're only a kid, Petty," he sneered. " What good could you do out there in a blizzard in a 'plane ? All right, if you must go—go ! "

There was a saddened look on the youngster's face. He realised that flying in the snowy wastes of the arctic region was serious enough at the best of times, but in such a raging blizzard as was now blowing at fifty miles an hour across the country, it would be well-nigh suicidal. It would be going to his death, perhaps !

But Tom's young head was held high as he adjusted his heavy fur-lined leather coat, his fur boots and his big seal-skin helmet.

" Anybody coming to help me out with the 'plane ? " he asked.

For a few moments no one moved, then one of the men stepped forward.

" Come on, chaps, let's give the kid a hand. After all it's him who's got to go through it—not us."

The three men moved out of the tent into the blinding snow and crossed to where a small aeroplane stood firmly roped down and covered over with heavy tarpaulins. It looked fatal for such a frail thing to try to battle against such fierce elements, but young Tom Petty was determined to reach his boss if it were possible.

It took one of the men quite ten minutes to move the frozen-up engines ; even then it was only done by holding blazing oil under the cylinders. But from a slow, sluggish start the two four-bladed propellers whirred, gradually increasing in speed, scattering the snowflakes until the two engines were roaring and waking the echoes across the snow-bound wastes.

" Petty, go and get a hot drink before you go. I'll rev. up the engines." It was Roger Grey speaking, yelling to make himself heard above the roar of the wind and the engines.

" But I ought to get away now and——"

" Do what you're told ! " snapped Grey, and the youngster ran to the tent, thinking it better to obey than cause further trouble.

But Grey's order was but a ruse to get Tom from the 'plane for a moment. During those few seconds, the second in command of the party climbed into the rear cockpit and huddled himself so low that when Tom climbed into his seat in the nose of the 'plane, he did not, for a moment, suspect that he was not the machine's only occupant.

With a roar, he turned the 'plane's nose head on to the blizzard and began taxi-ing across the ice, the 'plane gliding gracefully along on its sledge-runners, which had been fitted in the place of the usual under-carriage.

Once—twice the little machine nearly collapsed, the wind swinging it round, out of its course. But with wonderful driving skill, Tom swung her back on to the course. The throttle open to the full, the 'plane flung itself at the blizzard and, like a graceful bird, rose into the air, higher and higher until——

Tom could have shouted aloud for joy, although he could hardly see, and his mouth and nose seemed frozen stiff. The blinding snow suddenly ceased and sunshine was gleaming around. Below him was the blizzard. But it could blow its hardest now, Tom didn't care, so long as it had ceased

by the time he located Johnson's Head, whence had come the wireless S.O.S. from his boss.

Silence reigned in that clear, bright air, except for the steady, whining drone of the two powerful motors. Tom was guiding the 'plane by his compass and quite enjoying the experience, although the cold was getting at his limbs, cramped as they were in the tiny, padded cockpit.

Suddenly a suspicious shadow flung across the dashboard—a shadow thrown from behind him. For a fleeting second Tom threw a glance over his shoulder. Next moment he nearly lost control of the 'plane.

Behind him, in the second cockpit stood Roger Grey, muffled up to the eyes in his snow-flaked furs and in his hand was a gun, pointing straight at young Tom's head.

"You'd better go down—at once!" was his only order, shouted at the top of his voice, the sound even then carrying far away from Tom.

For a moment the lad knew no fear, and he shook his head resolutely, urging the 'plane even higher and faster.

But Roger Grey was a desperate man, and the revolver was pressed closer to the young pilot's back.

"Do you hear? Go down!"

This time there was a different tone about Grey's voice and momentary fear took command of Tom Petty. Swinging over the control-stick, the 'plane tilted gently and commenced a spinning dive to the snow-bound earth. The roar of the engines ceased, the whirring of the propeller grew softer and softer—the blizzard was reached—blinding snow that drove into their eyes and mouth, fogging their goggles, and it was all the gallant young pilot could do to choose a suitable spot to make a landing.

Flinging off his goggles to see more clearly, Tom quickly spotted a stretch of ice away to his left. Swinging over the control-stick again, the machine banked, turned and after a couple of wide spirals was soon bouncing on the ice, the runners sending up a shower of snow and ice as they sped across the stretch of blinding whiteness, ere the 'plane came to rest.

Roger Grey was the first to scramble out of the machine, to be followed a moment later by the young pilot, who commenced to stamp his feet to restore the lost circulation. After a few seconds he turned to the leering Roger Grey who stood smacking his hands against his sides.

"What's the meaning of this?" he demanded in a sharp, clear voice.

"Ha, ha"—the laugh rang across the snow-swept white wastes, to be lost in the howling blizzard—"you thought you'd be brave, didn't you? But listen here young man, I didn't intend that you should ever reach the boss. I don't intend that help shall ever reach him—that——"

"You rotter! You worthless rogue!" cried Tom Petty. "The boss, and those other two men will die out there—they're ill, and it won't take much to see their end. You can't——"

"Oh, yes, I can, and I'm not letting you go to their rescue!"

Once again Roger Grey laughed a fiendish laugh that echoed into the distance.

"Shut up, who d'you think is going to stop me reaching the boss? Not you!" said Tom. "I'm going on now!"

"You're not!" Roger Grey snapped the words and stepped towards Tom, his fists clenched in his big fur gloves and his eyes flashing with a red hatred.

But Tom Petty had faced worse dangers and hardships than this, and with a rush he leapt full upon the rascally member of the Digby Expedition. Next moment there came an ear-splitting report, cracking and echoing across the snowy wastes.

Grey had fired—and Tom was hit!

A momentary cry left his set lips, and his face paled under the darkness

of the hair. But not for a moment did he relax the grip he held on the other's fur coat. He had been hit in the left arm, he could feel the blood trickling down his flesh, but although his burly and bigger opponent fought and struggled, he could not break his hold on the youngster.

Tom twisted and turned, dodging the other's blows and waiting his opportunity. It came—suddenly. Grey left an opening and—smash!—Tom's right fist flashed and landed clean between Roger Grey's eyes.

The rogue stumbled back on his heels and crashed full length on the snow-covered ice, where he lay without a movement. The blow had done its work and the fall had helped to send Grey into unconsciousness.

There was no time to lose—the blizzard was now raging harder than ever and the temperature was falling even lower. If Tom was to reach his boss and his assistants he must act quickly.

Scrambling back into the 'plane he found a length of solid rope with which he securely bound the arms and legs of Grey. The rogue would not cause any trouble for a time. And, although his arm was giving him intense pain and the blood was running down into his glove, Tom dragged the unconscious figure of Grey to the 'plane.

So far so good. But the exertion of hauling the heavy body into the 'plane caused Tom severe pain, and time and time again he had to grit his teeth hard to prevent himself crying out in agony. But, after a few minutes Grey was safely aboard, nestling in the bottom of the rear cockpit where he had been hidden before.

Now came another feat of strength—the starting of the machine's engines—and it caused Tom worse pain than ever. The two engines were still warm, but the propellers had become clogged with snow and ice. It was a full five minutes before the second of the engines added its full-throated roar to that of the other, which started comparatively easily.

Then came more minutes of agony as Tom turned the 'plane once more head on to the raging blizzard and forced the machine up and up, climbing higher and higher until the snow and gale had been left far below.

Tom momentarily forgot the intense pain of his wounded arm as he studied the chart and his compass. According to his rough reckoning, Johnson's Head should lie about ten degrees to the S.S.E. And it was in that direction that Tom turned the fiercely roaring 'plane, noting that the near-side engine was missing slightly at times.

But with one aim only in view—that of reaching his boss, stranded out

there in the treacherous snow and biting cold—the lad kept the 'plane's nose in the direction in which he thought lay Johnson's Head.

It must have been half an hour later that Tom decided that his only hope of tracing the stranded airmen and their 'plane was to fly lower. Accordingly he swung over the control-stick and the gallant little machine dipped with a droning roar. Tom felt the colder air rushing to meet him, singing through the strut wires, causing the propeller to hum like a humming top as the 'plane dropped lower and lower.

Soon the sun and clear blue sky were blotted out and the air was filled with scudding, blinding snow-flakes. For a moment Tom lost control as a feeling of faintness came over him—next moment he had pulled himself together, and the fiercely-dropping machine was righted, flattened out as its pilot realised that he was very close to the ground.

Suddenly the snow-shower became thinner and thinner. Then Tom could have shouted for joy, only that he was too weak to do more than smile, as the snow ceased altogether and below him lay the white expanse of snow and ice.

Tom pushed up his snow-crusted goggles and his eyes roamed about the white wastes. Over to the left was Robinson's Bay—to the right was Johnson's Head, and—yes, there was a stranded aeroplane, its tail rearing into the air above the ice.

Next moment Tom saw the stranded men seated around a smoking fire. They had seen him too. One of them was standing up waving his arms and shouting—a glad cry, no doubt, although Tom could not hear anything above the whining, deep-throated roar of the engines.

It took him very few moments, however, to swing the 'plane to the right, circling over the heads of his mates and landing on a stretch of clear, shimmering ice.

Almost before the machine had come to a standstill, Colonel Digby, a tall, fine, bearded figure swathed in furs had run across to greet his rescuer, together with his two assistants. When he saw who it was piloting the gallant little grey 'plane, he gave a surprised cry.

" Petty—you ? " he exclaimed, extending his hand and helping the frozen-stiff lad from his seat. " Gee, but you're a brave kid. But—but what about the others ? Why didn't Grey come with the 'plane ? "

It took Tom a few minutes to recover his breath and hearing after the roar of the engines and the blast of the icy wind, but when he did reply to his boss' questions, it was with a smile.

" If you look in the rear cockpit," he said, " you'll find your esteemed second-in-command."

The two men who had been stranded with Colonel Digby ran to the 'plane and their cries of surprise were plainly audible to Tom and his boss, and amazed eyes were turned in their direction, as Grey was hauled from the cockpit—frozen stiff as a board—but bound hand and foot!

" Petty," cried Digby, rushing across to the 'plane, " what's this mean? Why is Grey like this? "

" He—he—threatened to shoot me if I came; said—said he didn't want you to be rescued; said th-that he was going to claim the money that you will obtain for the film rights himself. We had a—a fight and—and——"

Tom could say no more. The lad gave a little gasp, swooned and would have pitched forward on to his face in the snow had one of the men not slid forward and caught the youngster as he fell headlong, the blood even now soaking through his thick furs from his badly torn arm.

Then blinding whiteness was turned to black and Tom Petty knew no more!

. . . . . .

"Wh-where am I?"

Tom Petty pulled himself up on to one elbow and next moment with a cry of pain, fell back to the pillow. One of the five men seated in the little canvas tent lit by the glare from a spluttering blubber fire, jumped to his feet and crossed to the sleeping-bag lying near the fire.

"Lie still, lad, there's a good chap!" he said kindly to the haggard figure lying snug in it, a figure whose hair was bedraggled, whose eyes were sunken, and whose lips were pale under their parched skin. "You mustn't keep moving."

Then the tent-flap parted and tall, alert-eyed Colonel Digby entered and, seeing one of the men bending over the sleeping-bag, hurried across to Tom's side.

"Oh, colonel—you—you're all right then?" came in quiet rather pitiful tones.

"Yes, Tom, lad, thanks to you! But you're horribly weak and you mustn't worry or move about. Here, drink this. It'll help to pull you together."

The youngster took a long drink from the flask that his boss handed to him, then, his eyes brighter, he turned once again to the leader of the party of which he was the junior member.

"But—but what about Grey?" he asked.

"Don't worry about him, Petty, lad," said the colonel, laying Tom back upon his pillow. "He went out into the blizzard two nights ago and hasn't come back. He——"

"Two nights ago?" asked Tom, with surprise in his sunken eyes.

"Yes, lad, you've been here two whole days now. We brought you back in the small 'plane, since when we've been back and rescued the freight machine. Now we're waiting to leave for home again, our job at an end."

"Then you're waiting for me?" queried Tom, a smile crossing his bearded young face.

"Well, not exactly, Petty. A holiday won't do us any harm." He gave a laugh as he said it. A holiday? And these men had been facing the greatest of hardships—even death itself for weeks past in that treacherous expanse of snow and ice. "But don't worry, lad, I've got pictures that'll make the world sit up and take notice. They're the finest

ever taken—and most of the praise is due to you for your bravery a few days ago."

The lad smiled, while the other men in the tent, wrapped in their furs and filling the tent with dense smoke, trying to keep themselves warm, crossed to the canvas sleeping-bag in which the young explorer was lying snug and warm.

" Tom," Colonel Digby paused on the word, " when we've had a long holiday, you know I'm going to make an exploration in the African jungle. Will you be my chief pilot ? "

The lad was too weak to answer, but his hand slowly lifted from the warmth of the sleeping-bag and gripped the colonel's in a grasp that meant much to them both.

Three days later two 'planes soared into the air from their previous four months' quarters among the endless, tractless expanse of grim whiteness, soared up like graceful birds, carrying five men and a lad on a stretcher, and their deep-throated roar gradually decreased as they flew away into the hazy distance.

Exploring the World by Air

By Lieut.-Col. I. A. E. EDWARDS, C.M.G.

(Formerly Chief Technical Adviser on Civil Aviation at the Air Ministry).

IN a sense the aeroplane has made the world a smaller and richer place! At any rate, we have been enabled to penetrate into otherwise inaccessible regions with the aid of aircraft, and the exploration and development of the remote corners of the earth is progressing at a much more rapid pace.

In Australia, for instance, the aeroplane is recognised to be the means of great development. Even the vast and arid Northern Territory is being opened up by air. It is highly probable that the deserts there contain mineral deposits of immense value, but the commercial development of the territory has been paralysed by the difficulties of transport. Now that the aeroplane has arrived on the scene, however, the desert will be robbed of its secrets and the way will be opened for commercial enterprise. Not long ago an air expedition set out over the desert to investigate a possible mining area, and returned within a few days, its purpose accomplished. The leader of the party said afterwards that an expedition by camel—the only alternative—would have taken over a year.

The aeroplane has made, too, for real colonisation, for it permits colonists

By courtesy of Flight.

Handley-Page 40 seater air-liner designed for the Imperial Airways London - Paris service.

Topical.

The Dornier Do X Flying Boat taking off. Designed with 12 engines developing 6000 b.h.p., it can carry 170 passengers.

to take their wives and families with them. They can receive the necessaries—and even the luxuries—of life by air, and they are always within reach of medical aid.

In many distant parts of the world air transport has made possible discoveries and enterprises which have baffled man for centuries past. There are gold mines in New Guinea, practically inaccessible across the mountains, which are worked almost entirely by means of aircraft. The journey by air from the base to the workings occupies forty minutes, but across country by native carriers it takes almost a month! The airway, moreover, is the cheaper route. Workmen, plant and stores are all transported by air, and if the aeroplane service were to be withdrawn the mines would cease to function. Probably the men at the mines would be in dire straits for food.

In the same way, the development of inaccessible oil fields will undoubtedly be rendered possible by aircraft. The oil industry in several parts of the world will benefit considerably by the establishment of air transport, and so also will the copper and gold industries.

It has long been known that a huge copper bearing area existed in the heart of Rhodesia, but this, too, was commercially unworkable owing to the difficulties of access and the expense of preliminary investigation. In order to obtain data regarding the deposits it would have been necessary to equip ground expeditions to work for long periods at great expense. During the past year, however, a complete survey has been made from the air, and the exact position of the copper deposits in hundreds of square miles of country has been determined by aerial photography. The copper is clearly indicated on the photographs by the nature of the vegatation.

Such surveying—a specialised form of exploration—is known as " cruising " ; and " timber cruising " has been adopted in Canada to map the forests, to ascertain their nature and value, and to protect them against fire. (This latter branch of aerial work, however, is dealt with in another article).

In various ways aeroplanes are being used as a means of development and settlement in the backward regions of the Empire. They enable us to determine the extent of our minerals, water power and other resources, and permit transport over country in which ground travel is out of the question.

Then we have the wonderful exploration of the Polar regions by air, which are adding to our knowledge of meteorology—the science of weather

—and of the working of the world's whole mechanism. Sooner or later air routes crossing the North Polar regions, from America to Europe and from Europe to the Far East will be established. The quickest air route from London to Japan actually lies directly across the North Pole!

Sir Hubert Wilkins took a party to the Antarctic early in 1929 in an attempt to discover sites for meteorological stations, and to solve some of the riddles of Antarctic geography. He accomplished in a few weeks work which might easily have taken a year by any other means. At the same time Commander Byrd, the American, conducted a huge air expedition to the South, taking three ships and five aeroplanes. The idea behind this great venture was to explore every avenue of scientific research and commercial development—sealing, mining, or anything else—for the United States. He also set out to fly to the South Pole, and, I believe, has been successful in doing so.

The advantages of the air over any other means of exploration and fast transport are quite obvious. Let us suppose that a financier in London to-day receives a proposition concerning a remote district in Africa. In the ordinary way he would either have to go himself or send out a representative to investigate the claims, and after all arrangements had been made he could not hope to have the information he required in less than six months—probably he would have to wait a year. The result is that many valuable openings for the investment of capital and the development of Empire resources are lying dormant. Suppose, on the other hand, that the financier chartered an aeroplane and set out at once. He could be back in his office, after personally surveying the property in Africa, in a few weeks! Quite possibly he would have acquired valuable data regarding other promising schemes.

In such practical ways aviation is steadily making the world wealthier, and bringing the continents closer together. It is quite safe to say that before long there will be no remote part of the earth which remains uncharted, and all the hidden riches of the world will be opened up for the benefit of mankind.

A YANKEE AT ST. JUDE'S

BY R. S. ELL

MONTY BLUE was peeved! His study-mate, Johnny Groves, was peeved! In fact, the whole of the Fourth at St. Jude's were peeved! And the reason? Because the Fifth, with a rotten team, were leading the Fourth a goal to none in the St. Jude's Soccer Cup match.

Suddenly Monty, playing centre-forward, received a smart pass from the left wing. He trapped the ball, swerved round the opposing centre-half, and was away.

The backs were converging on him. He went on, then hesitated for an instant. It was not the close attention of the last line of defence that was worrying him. A continual buzz above, in the air, was putting him off.

For a tenth-second he shot a glance upward. It was enough. Bull—"beefy" Bull they called the Fifth man at St. Jude's—came at him, and Monty measured his length on the turf.

"Hard luck!" murmured Johnny, panting, as the ball was booted to the other end.

"If that bloomin' aeroplane'd clear off, I'd be able to do some-

thing ! " cried Monty, getting to his feet. " Look at it ! The fellow in it is having a rare game, isn't he ? "

The machine had swooped down until it was scarcely a couple of hundred feet above the pitch, then it had zoomed up again.

" Wake up, Groves ! " came the yell from around the ground as the ball came towards Monty and his chum.

Johnny was about to race for the ball when a hubbub and a scamper caused him to look about him. Then he scampered, too ! For the aeroplane had turned and was making straight for the pitch in a mad roar of sound.

" It's coming down ! " shouted a First Former near the goal-posts. Then he almost fell in his haste to get clear.

The engine was suddenly cut out, and the machine swept lower and lower. It touched the playing fields about two hundred yards beyond the pitch on which the Fourth *v.* Fifth match had been taking place and taxied on to the very ground, stopping with a jerk in the Fifth's penalty area !

An army of excited youngsters ; Fourth and Fifth men ; and players hurried forward as a goggled head was thrust over the forward cock-pit.

The goggles were raised.

" Hello, kids ! This is St. Jude's, I guess ? "

" Yes ! " It was Monty Blue who spoke. " It is, and who the dickens are you ? "

" Me ! Say, ain't you heard of me—Silas B. Hank ? I'm fixed up for St. Jude's."

Monty looked at Johnny, who was shouldering his way forward.

" Here he is, Johnny ! " Monty turned again to the boy in the 'plane. " Why, we were asked to meet you at the station. The Head said you were coming on the six-ten."

Silas B. Hank chuckled.

" Now ain't that just *too* bad ! I *was* coming on that train, but I thought I'd take my brother's bus instead. Your trains are too slow f'me."

" Now ain't that just *too* bad ! " This time it was Bolton, the Fifth captain, and a prefect, who took up the reins. " What are you going to do about this thing ? " he asked, pointing to the 'plane. " Do you know you've mucked up our match ? "

Silas B. Hank raised an eyebrow.

"I'm real sorry," he said, subdued somewhat by Bolton's importance. "Guess I'd better see the chief, eh?"

"You'd better!" Bolton repeated. "And get this machine off our pitch. Come on, some of you chaps. Shift it on to the spare ground."

There were many willing helpers, and slowly the aeroplane was moved off the pitch.

"Now clear, and see Dr. Simpson," Bolton ordered. "And when you've done, *I* want you. Come down here."

The game was re-started and for a while, in their efforts to draw level, Monty, Johnny and the rest of the players forgot the startling arrival of Silas B. Hank, the "new boy" of the Fourth.

The new boy forgot them, too, when he found himself face to face with Dr. Simpson, grey-haired and stern.

"I've—er—arrived!" Silas B. Hank began.

"So I perceived from my window," Dr. Simpson remarked icily. He looked Hank up and down, from his sharp-pointed nose to his sharp-pointed American boots.

"It is not—er—customary, Hank, for new boys to arrive in such a manner as you did. Who gave you permission to use a 'plane? At sixteen you cannot fly a machine in England."

"Nobody gave me permission," said Hank. "I just took the old bus, sir."

"In which case you will take immediate steps to see that it is removed, Hank. You had better write to your people at once. You will be placed in Study 1 in the Fourth Form passage with Blue, who is Form captain, and his study-mate, Groves. You will find them very friendly boys, and you will undoubtedly become—er—chums. That is all."

Hank nodded shortly and walked out.

"Tough guy!" he murmured. "Guess he wants handling some!"

He found his way to Study 1 in the Fourth passage and there awaited his new room-mates, quite forgetting that Bolton had asked for him. He remembered when the door burst open and Monty and Johnny put in an appearance, the match having ended 1—1.

"Hullo! *You* here?" cried Monty. "Of course. You're shoved in with us, aren't you? By the way, Bolton's fuming."

"Suppose I'd better see him," Hank suggested.

"Yes," answered Monty. "He wants to know what you're going to do with your aeroplane."

"That's easy!" said Hank, brightening up. "I've got to get my brother to fetch it. That's all. It'll just have to wait until he can collect."

"Tell that to Bolton and he'll tan you," said Johnny, laughing. "It's resting on the Fifth's pitch at the moment, you know."

Hank evidently made his peace with Bolton, for he returned all smiles.

"He's easy!" he said. "Guess I'm going to like this burg!"

"What did Bolton say?" asked Johnny Groves.

"Gave me two days to get the bus fifty miles away."

Johnny and Monty smiled.

"So," concluded Hank "brother Theodore will be here to-morrow."

"Then you'd better keep out of his way if he's anything like my brother," said Monty. "My hat! If he had an aeroplane and I cleared off with it—holy smoke! My remains'd be scattered to the winds!"

Silas B. Hank chuckled.

"Theodore is exactly like that!" he said. "But I guess he soon calms down!"

Silas, however, had reason to dwell over his words next morning. First, a letter arrived from brother Theodore. Part of it, the part which gave Silas most food for thought, was couched as follows:

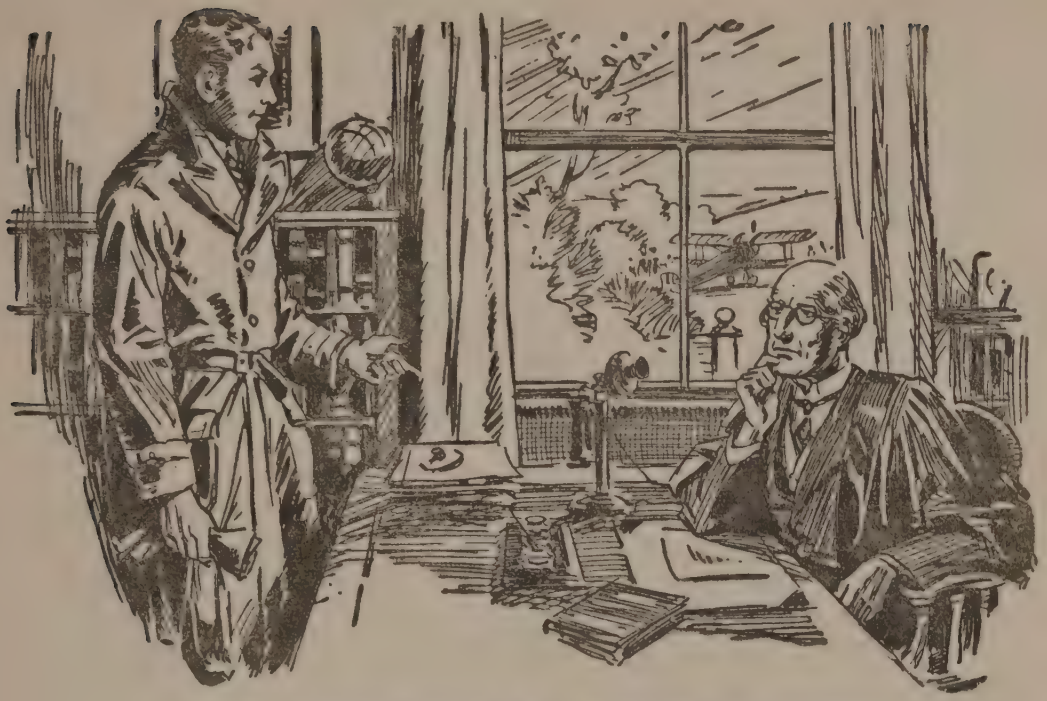
"I'm going to Manchester right now. Bring my bus home before I get back or I'll flatten you. I've promised you the biggest tousing a kid's ever had, and if that bus isn't in the hangar in a day's time when I return, you're for it good and strong. Get that into your skull and bring my aeroplane home . . ."

Hank's lessons suffered that morning. His afternoon lessons suffered even worse, for at midday a telegram had been delivered to him.

"Got your wire telling me to come for 'plane. You've had my letter in post. Get that 'plane home or prepare for slaughter."

That was all, and Silas who evidently knew the strength of brother Theodore's arms, was perturbed.

He showed the letter and telegram to Monty and Johnny.



The new boy found himself face to face with Dr. Simpson.

They laughed.

"Can't help laughing, old man," said Monty. "But it's all so funny." He pretended not to see the alarmed expression on Silas's face at the word "Funny."

"You jest don't know Theodore!" muttered Silas unhappily. "He's got his mad out good and proper."

"What about seeing the Head and suggesting you should take it home?" queried Johnny.

"Nix on that! After what he was like yesterday, there's nothing doing. I'd sooner face an army of cannibals."

"In any case, you couldn't get *his* permission," added Monty. "Because he's gone to London for a couple of days to a Public Schools Conference, or something. Old Face-ache"—as Mr. Fascet was "affectionately" termed—"is in charge, and he's such a stickler for rules and regs. that he'd gate you for the mere suggestion."

Silas sighed.

"I guess I can never go home again, then," he muttered. "You don't know Theodore!"

Monty couldn't help laughing.

"Cheer up!" he said. "Pad yourself well and it won't hurt."

The suggestion only served to make Silas B. Hank more miserable than ever. And there was Bolton to think of, too.

. . . . . .

Silas B. Hank couldn't sleep. All around him came the sound of steady, healthy breathing; but for him sleep was far away. He had awakened out of a dream in which his brother Theodore, exuding fire and flame, was chasing him through the air—they both had wings, like angels—chasing him with a battle-axe, and swiping at him every time he got close!

Silas B. Hank did not dare to sleep after that!

He listened to the rain beating against the window panes, and wondered at the condition of Theodore's aeroplane.

A gust of wind shot a rattle of raindrops against the window. It made Silas B. Hank start.

"The—the bus'll get blown away if we get much of *that*!" he told himself.

As if in answer, the wind began to howl.

Silas fidgeted in his bed.

Another, and stronger howl of wind. . . .

Silas sat up. He looked about him.

"You asleep, Monty?" he whispered.

He heard a movement two beds from him.

"No! I've been thinking about your aeroplane, and wondering if it'd be damaged in the wind."

Silas's heart warmed to his English study-mate.

"That's real decent!" he whispered back.

"I've been thinking the same!" came Johnny Groves' hoarse whisper from the surrounding blackness.

Silas got out of bed.

"Look here, you chaps. I guess I can't stand this any longer. Are you game to help me get the bus home? It's"—he looked at the luminous dial of his watch—"it's just ten o'clock. I reckon I could get her home, in her hanger, by eleven. Then we could have the car back; the pater'd understand."

"Good lor!" exclaimed Monty. "What would the Head say?"

"My pater'd square him," said Silas, warming to the idea. "Trust him to fix it. I'm frightened the bus will be so damaged it'll want dollars galore spent on it. And Theodore's mad already!"

"I'm game!" said Monty, after a moment's thought. "Can't see you trying to do it yourself. And after all, study-mates stick together."

"Same here!" said Johnny. "Better dress at once?"

"Sure!" came from Silas, pulling his trousers on. "We can get out of the window easily, climb down the shed roof and drop the few feet to the ground."

Five minutes later three boys, clad in long overcoats, were hurrying across the quadrangle towards the playing fields, the rain beating in their faces, gusts of wind making them hold their breath.

"Beast of a night, isn't it?" said Johnny.

The others agreed.

They came upon the machine, held firm by the chocks of wood which had been placed against her. But, as Silas said, there were signs that soon she'd be moving out of position.

He took a good look at her. She seemed all right. Then he turned to his study-mates.

"She really holds two," he began. "One in each cockpit, but if you chaps like to squeeze into the after-cockpit, we can manage O.K."

Monty looked at Johnny. Should one of them agree to go back?

"We'll squeeze!" said Monty, shortly. They weren't going to miss this now for anything.

"Right!" cried Silas, shouting as the wind howled about them. He gave instructions as to the grabbing of the propellor. A couple of minutes later a deafening roar sailed out on the wind as the engine started up.

Monty and Johnny clambered into their cockpit, one sitting on top of the other almost, and then the machine was jockeying into position.

A deeper roar as she commenced to run across the field. Into the wind, and she lifted. Silas B. Hank turned her nose skywards and then for home.

As they rose Johnny started.

"A light!" he gasped, pointed back towards the school building.

Monty followed his gaze. There *was* a light, from one of the upper rooms, and from its position he sensed that Face-ache had heard the noise!

The aeroplane droned steadily into the clouds, making headway against the wind's buffeting. The rush through the cold air was certainly exhilarating, and both Johnny and Monty were enjoying themselves.

They thought for an instant of what was to happen when they returned, but they thrust the vision from them. It was useless to meet trouble half-way. *Trouble!* Yes, there would be trouble! Trouble for three!

The machine kept on her course towards the south of England. Silas turned her Londonwards, to get his bearings from the Thames. The wind had dropped considerably now, and the rain was no longer coming down in sheets. In the distance, above, Monty made out stars.

"It's going to turn fine!" he bawled into Johnny's ear, and Johnny nodded vigorously.

Suddenly Silas turned the engine off. The machine rode silently through the air.

"This is real good!" he shouted to his chums. "We'll make it in fifteen minutes. I've never driven her at night, you know!"

"What!"

Johnny sat up so sharply at the words that his head came in contact with Monty's chin.

"Oh!" cried Monty.

The pain, however, was forgotten in the revelation.

"Never driven at night! My hat!" Monty gazed below, at the thin strip of river showing dully.

"Let's hope we get down!" shouted Johnny in Monty's ear.

This time Monty nodded his head off.

The engine roared again, and the machine banked sharply. They were beyond London's southern outskirts now, with Silas looking eagerly below.

The engine cut out. They dropped lower and lower, then swept round in a circle.

"O.K.!" came from the man in front. "I've spotted it."

Johnny fixed his eyes below, and strained them to make out "it." Then he saw! "It" was a mansion of a place; with grounds stretching miles, it seemed, into the darkness of distance.

The engine roared, died, roared, died! Lower and lower. Another wide sweep, and then they dropped.

"Sorry I couldn't land better," said Silas.

They were just above tree-tops now, Monty noted, and still coming closer to the ground.

Then it happened! They felt the machine jar as something caught her under-carriage. Her nose turned earthwards and, like a bomb, they made for terra-firma.

Silas held on like grim death. Monty clutched the cockpit, and Johnny grabbed Monty in a vice-like grip.

Crash! The aeroplane's nose hit the ground with a terrific impact. They saw Silas shoot half out of the machine. Johnny *was* out, on the wet grass. Monty had sort of slipped inside the bus.

"Gosh! That was a rotten landing!"

The words came from beyond the buried nose, and a figure moved towards the rear of the machine. So Silas was still whole!

"Oh!" The sound came from the ground. A figure was getting to its feet. It was Johnny.

"I'm bruised all over!" he said, panting.

"Well, you might come and help a chap out!" This time the words came from somewhere *in* the machine. Johnny and Silas hurried over,

and gripped Monty as he endeavoured to withdraw himself from the broken cockpit.

Soon the three were standing on the grass.

"All O.K. then," murmured Silas. "Sorry I couldn't land better than that! We must have hit a tree!"

"And what will Theodore do now!" murmured Monty.

"Great jumping frogs!" Until this moment Silas had forgotten brother Theodore. "Boys," he said, "I like roses—white ones! And bury me deep!"

The words were spoken so seriously that Monty and Johnny could not help laughing outright. It broke the tension. the shock of their crash. They had not however, seen lights going up in the rooms of the house some distance back—principally because it was hidden in a mass of foliage from tall trees behind them.

Torches were now gleaming their way towards the wrecked machine.

The three boys twisted about as they heard movements.

"The pater!" Silas hurried towards the lights. Monty and Johnny followed slowly.

Three minutes later they were being introduced to a tall, thin-faced man with iron-grey hair.

"Guess this is the pater!" said Silas proudly.

"Pleased to have y'know me!" came from the tall man as he shook hands with Monty and Johnny. "Helping my son out of a fix, eh?"

Monty smiled.

"He seems to be in a worse one now!" he remarked. "The bus is smashed up."

Hank senior nodded. "So I believe!" he murmured.

"Lucky Theodore's away," said Silas, softly.

"Yea, and lucky you'll be back at school before he returns!" answered his father. "Better all come indoors."

The party trooped into the house.

"Guess I'll ring up the school and tell 'em you'll be right over in the morning."

Hank Senior put the call through and had a long conversation with Mr. Fascet.

"You're for it—the three of you!" Silas's father remarked when

he had put up the receiver. "Guess that teacher fellow is out for blood. And now, Silas, to give you some sound advice!"

Mr. Hank forthwith told Silas exactly what he thought of him for taking the machine, what Theodore thought of him, and so on, *ad lib.*

Monty and Johnny smiled. Fatherly advice was good to hear—when it was not meant for *them*!

. . . . . .

Next morning three rather pale-faced youngsters arrived at St. Jude's with a tall, thin man who "guessed he'd fix things right!"

He did! He made it clear that he wanted Silas to grow up with the traditions of public school life instilled into him; wanted him to play English games—football and cricket—which he hated.

The sentence? The three "gated" for the rest of the term; Silas to play only football and cricket until he was worth a place in the Form eleven!

The Head gave them a lecture such as they have no wish to hear again. It probably went off their backs like water on a duck's, but one thing it did do—cemented a wonderful friendship between Monty, Johnny and Silas.

To-day Silas is in the Fourth cricket eleven and the Fourth football team. He says that when he goes back to America when schooling's over he's going to show 'em how to play the two finest games ever invented! And Johnny and Monty are to go with him!

Down in the Desert

By SIDNEY MAYCOCK

KEEN, dark eyes watched eagerly as the speck in the sky grew larger, revealing itself as a graceful blue-grey monoplane, flying fairly low over the sandy waste.

"Yon is no vulture of the air which deals swift death, like those that came before," cried a guttural voice, and the watchers, a group of grim-faced Bedouins, glared still more fiercely at the approaching 'plane.

Sheik Mohad, chief of the band of wild nomads, laughed softly.

"Wait, my brothers, wait," he said, "and then—who knows? After many miles of desert sand, the feringhees yonder will plainly see this spot—a few palm trees, a little pool, two or three tents and some camels.

"And you, Mahmood, and you, Hussein—you will run hither and thither, waving a cloth to attract their attention. And they will fly low near the ground to see what your actions mean. Then from the tents we all shall come. Shoot straight, my brothers. For sweet indeed will be our revenge if we can but slay these feringhees."

Nearer and nearer came the 'plane and all the tribesmen except Mahmood and Hussein hurriedly hid themselves in the black hair tents.

Quickly Mahmood and Hussein released from their shoulders the loose outer garment they wore and commenced to wave them vigorously to and fro.

The 'plane was overhead now and the Bedouins could discern two faces peering over the side of the cockpit.

For a moment it seemed that the 'plane would pass by without further ado, and the Bedouins waved their garments yet more frantically. Then the 'plane banked steeply and in a sweeping spiral she began to swoop towards the earth.

"*Ha-ya!*" yelled Hussein wildly.

A moment later the Bedouins were out of the tents, their rifles ready. A storm of shots whistled into the sky and many of the bullets tore through the fuselage. Again and again the Bedouins fired and they saw the two feringhees draw back to avoid the leaden hail; but the 'plane's nose turned upwards and she began to mount rapidly.

" Bismillah—they escape us ! " roared Mohad. Then his anger changed to wild glee. For he and his followers heard the roar of the engine give place to a choked splutter and then die completely away. And the aircraft, halting in its flight like a wounded bird, began to plane swiftly downwards.

Madly the Bedouins tore along in the track of the decending machine. They saw it come to earth, bump, half rise again and then run along the flat sandy ground.

The Bedouins tore along in the track of the descending machine.

" They live," cried Mohad. " So much the better. For their death now shall be less swift."

Yelling fiercely, the Bedouins scattered as they raced nearer the 'plane and spread in a circle around it.

They saw the door of the cockpit open and two figures emerge—those of a tall, well-built man and a sturdy youth. Then with a wild sweep the Bedouins closed in, penning the two whites in their midst.

" What means this ? " demanded the white youth, in the Bedouins'

own tongue. " Why seek you to harm those who have done no wrong to you ? Assuredly it is an evil thing, for which you shall pay dearly."

Mohad laughed scornfully as he stepped within the circle made by his followers around the feringhees.

" I caused this thing to be done," he answered softly. " And as to paying—well, we shall see."

" Look here," broke in the big man in English. " I don't know what you are saying, Ron, but tell him if he's not careful I'll give him the best hiding he's ever had in his life."

The Bedouins could not understand the words, but there was no mistaking the gestures which accompanied them. And a murmur of anger ran round the circle.

" Let he who does not speak our tongue be silent," snapped Mohad. " Now tell me who you are and where you were journeying."

" This ship which flies in the air belongs to my uncle here," said the youth quietly. " He travels to the land of India, but stayed his journey that he might visit his brother—my father. And before he went his way again I asked that he would let me fly in his ship. My father is Martin *Sahib*," he went on, " and him you must know, for he is a great merchant in these parts."

" Now you shall hear my words," said Mohad softly. " Four days ago my followers and I came upon a merchant's caravan travelling over the desert yonder. And we made certain demands, for we were many and they who were with the laden camels were few. But he who had charge of the caravan—a feringhee as you are—laughed at our demands : and because of this we fought. Fierce was the fight and not until all his followers lay upon the ground did the feringhee flee. And his camel was too swift for us. At dawn next morning, to the camp wherein we were dividing the merchandise, came three great vultures of the air. Fire and death they breathed upon us until our camp was no more and many of my followers lay upon the sand. Then we scattered and fled."

Mohad had been speaking quietly. Now his voice changed to menacing anger.

" I swore that others who flew in the air should pay dearly for the evil that was wrought upon us. And you shall pay. Those vultures will pass this way again, maybe to seek you. In truth they shall find you, out there upon the desert, and this ship of the air. But," he ended fiercely, " little joy will it give them to find—what they will find."

T.A.

It seemed as if the plane would pass on.

Then he turned to his followers. "Seize the feringhees," he roared. "The vultures came at dawn and it is fitting that these feringhees should have till dawn that their thoughts may dwell on what will happen then."

"Lookout, uncle," shouted Ron. But fiercely as the two struggled, numbers were too much for them and a few minutes later each was firmly bound with rope. Then the Bedouins carried them roughly to one of the tents and thrust them inside.

As soon as Ron had got back his breath he told his Uncle Jim all that had been said.

"Evidently the white man who escaped got word through to the Air Force squadron at Massorah and they came along to teach these fellows a lesson," he concluded. "And because they have taken rather a dislike to aircraft and want revenge, we've got to suffer. Sorry, Uncle, to have let you in for this."

"Not your fault, Ron," answered Uncle Jim, "I thought they wanted help; that's why I came low enough for their shots to take effect; and it was just sheer bad luck for us that one of the shots should cut the main petrol pipe. Otherwise we should have been up and away. Anyhow, they have left us alone now and here goes to see what I can do with this rope."

Ron followed his example, but however strenuously they struggled, escape was apparently hopeless. The rope was too strong and so tightly was it tied that it bit deeply into their skin.

"It is no good," panted Uncle Jim at length. "But if only we could get free and reach that 'plane! We'd soon have help here—if they haven't destroyed the old 'bus yet."

"You mean the wireless?" cried Ron. "If only we could! I don't believe they will burn the 'plane yet. I think they will save it—till dawn."

Knowing the fiendish cruelty of the Bedouins, he shook himself to drive away the picture of the blazing 'plane and he and his uncle . . .

Again they fell fiercely to work on their bonds, only to give up when they were breathless and exhausted.

Then they lay still for a time, each busy with his thoughts. Ron knew they were expected back from their joy-ride by sunset. What would happen when they failed to appear? As the hours passed without news, his father would begin to get ready a search party. They would not search the desert by night, though; they would wait until dawn. And then it would be too late. There was no way in which Ron's father could communicate direct with the Air Force squadron. He would have to send to Dustaf first—the

nearest big town. And even if his father immediately thought to do that it was doubtful whether the messenger would leave before dawn.

Yet near to hand lay the possible means of their salvation—the wireless in the 'plane. And he knew how to use it. He had learned Morse when at school because he had been keen on wireless and liked to listen to the ships' signals. And Uncle Jim had explained just how his transmitter worked.

If only . . .

Slowly the hours passed. Sometimes Ron and his uncle spoke; often they attacked their bonds, with the same fruitless result as before.

The growing darkness inside the tent told of the setting of the sun. They heard the crackling of a fire outside their tent and the sounds of the Bedouins preparing their evening meal.

Then Mohad, accompanied by a couple of the Bedouins, came into the tent.

"Dawn grows nearer, feringhee," he cried mockingly to Ron. "And you have both much to think about. So that each may think without interruption, this man we will take with us. Not only will you be able to think more peacefully, but there will be no danger that you could conspire together to gain your freedom. Thus we of the desert can sleep more soundly—till dawn. For after what happens then, we must put great distance between ourselves and this place, that no one may associate us with the happening of a burnt ship of the air and those who suffered in the burning."

"Don't give up hope!" Uncle Jim cried as they bore him away. And Ron gave a cheery response . . .

Soon it was quite dark and after a time all sound was hushed in the camp.

Suddenly Ron had an idea. Rolling over and over he struggled to make his way towards the opening of the tent. At last he reached it; then with a supreme effort he edged his body so that he could get his head outside. Perhaps he would be able to see where Uncle Jim had been taken.

The tent in which he was a prisoner stood a little apart from the other two—probably it belonged to the Sheik—and its opening faced the other way. The Bedouins were apparently sleeping in the other tents, or in front of them, for no one was near him. Mohad had not troubled to place any one on guard over a mere boy.

A faint flicker of light from some dying embers quite near the tent showed where the men had cooked the rice for their meal.

A moment later Ron was struggling madly to roll towards those embers.

He could dimly see the dark outline of the 'plane.

Inch by inch he forced himself along until at last he reached the faintly glowing wood.

He thrust out his hand until the rope which bound them rested on an ember! The pain of scorched skin rushed through his arms, yet grimly he hung on. But before the ember could have much effect on the rope, it had flickered and died out.

Again, with infinite care, he wriggled round until another ember could be reached. Once more the pain—but he saw that this time he was more successful.

Putting forth every scrap of his strength he tried to force his hands apart—and they were free!

For a minute or two Ron nursed his burnt and cut hands. Then he dug down into his pocket for his penknife and quickly freed his legs.

Silently he crawled into the shadow of the tent in which he had been a prisoner. Then, taking advantage of every scrap of darkness, he stole

from palm to palm, until at last, crouching in the shelter of a big tree, he could see into the clearing in front of the other tents.

In the midst of the Bedouins, Ron could discern in the moonlight the form of his uncle. And whilst most of the tribesmen slept, with their heads covered in their rough cloaks, two of them—evidently on guard—were seated by the white man and talking in low tones.

To attempt to reach his uncle was impossible; Ron could see that. The least sound would be heard by the wakeful Bedouins.

Making no sound, Ron crept away from the tents and trees. There in the distance he could dimly see the dark outline of the 'plane.

Once clear of the encampment the lad broke into a run. Soon he had reached the 'plane and a moment later, with the 'phones clamped to his ears he was tapping hurriedly at the transmitting key, trying to get in touch with the Air Force station.

Feverishly he tapped, but slowly the minutes passed without response.

At last! A few more hurried taps and the Air Force station's call sign came in reply.

As quickly as possible Ron told of what had happened. Crisp question followed crisp answer. The 'planes would set out as speedily as possible. The pilots knew the general locality. They would be there by the first signs of dawn . . .

A few more questions and Ron removed the earphones. Would the 'planes be in time—and when the Bedouins saw them, what would they do to Uncle Jim in their rage? And to him—for he had no intention of deserting his uncle?

Back to the camp Ron crept. The two Bedouins were still talking together and there was nothing Ron could do but lie in wait, hoping against hope that something might occur to afford even the faintest chance of a rescue. And so, as long as a day, one hour passed, and another.

Then the sky began to darken, a sign that soon the first faint flush of dawn would come. He *must* do something.

With every nerve tense Ron crouched deeper in the shade of the trees.

" 'Tis time we brought out the young feringhee to prepare him for the dawn," he heard one of the Bedouins say as the men passed.

Ron darted forward. Through the sleeping tribesmen he crept until he reached his uncle.

He placed his hand over the sleeping man's mouth, lest he spoke, and

gently shook him. Then with a few quick slashes of his penknife he had severed the bonds.

As quickly as they could they began to creep through the sleeping Bedouins. Just in time—for as they emerged from among the tribesmen, the alarm came ; a wild shouting from the direction of the far tent. And they heard the cry taken up as one Bedouin roused another.

But the two whites were away now, running as quickly as they could, Ron guiding his uncle towards the 'plane.

Out from the trees came the yelling Bedouins. In an instant they had seen the hated feringhees and were in hot pursuit.

A wild spurt and Jim and his uncle had reached the 'plane and were crouching in the cockpit.

" I hope they come near," muttered Uncle Jim grimly. " Then we may be able to account for one or two before——"

He broke off, but Ron knew what was in his mind.

For a moment the Arabs paused. Then they began to circle the 'plane, their rifles at the ready.

" Ho, feringhees," they heard Mohad's mocking voice. " You think to escape us. Yet you have but travelled to the place to which we would have carried you. Now that ship of the air shall burn—and not alone."

The sky was beginning to brighten and Ron gave a despairing glance round as the Bedouins began to close in.

Then three great shadows began to swoop down from the sky and mighty bombing 'planes revealed themselves. So high had they flown that no sound was heard by the yelling Bedouins. But now the droning of their engines drowned all else.

" The sky vultures," shrieked one of the Bedouins, and mad with passion he raised his rifle and pointed it at Ron.

But Mohad struck the gun into the air and the bullet exploded harmlessly.

" Incur not greater wrath from the vultures," he cried.

Shouting in fear, the men began to tear back towards their camp, thinking to escape on their camels. But remorselessly the 'planes flying near the ground herded them together, till they threw down their arms and cried for mercy.

Ron turned to his uncle.

" And I called it a joy-ride ! " he said with a grin.

The Rocket Aeroplane

By STANLEY FREEMAN

WHEN the first railway engine puff-puffed its laborious way along a track of metals, there were people who laughed and said that very soon the new-fangled contraption would blow up.

The new-fangled contraption did not blow up. It changed its design as the years rolled by until now we have a locomotive even more advanced than the L. & N.E.R. " Flying Scotsman."

At some race meetings in Germany a few months ago a number of peculiarly constructed cars made their appearance. They were called rocket cars, and were driven by a force totally different from the internal combustion engine which drives both motor-car and aeroplane at present.

They were laughed at, these new-fangled contraptions ! And in this case there was every reason to laugh ; for they could not even go as fast as present-day motor-cars. These " rocket automobiles " brought tragedy in their wake, for was there not Max Valier, the famous Austrian designer ? He had made a rocket car and would have tried her out. But a rocket exploded when he was preparing the machine for a test, and killed him.

" Many more will die ! " the sceptics predicted.

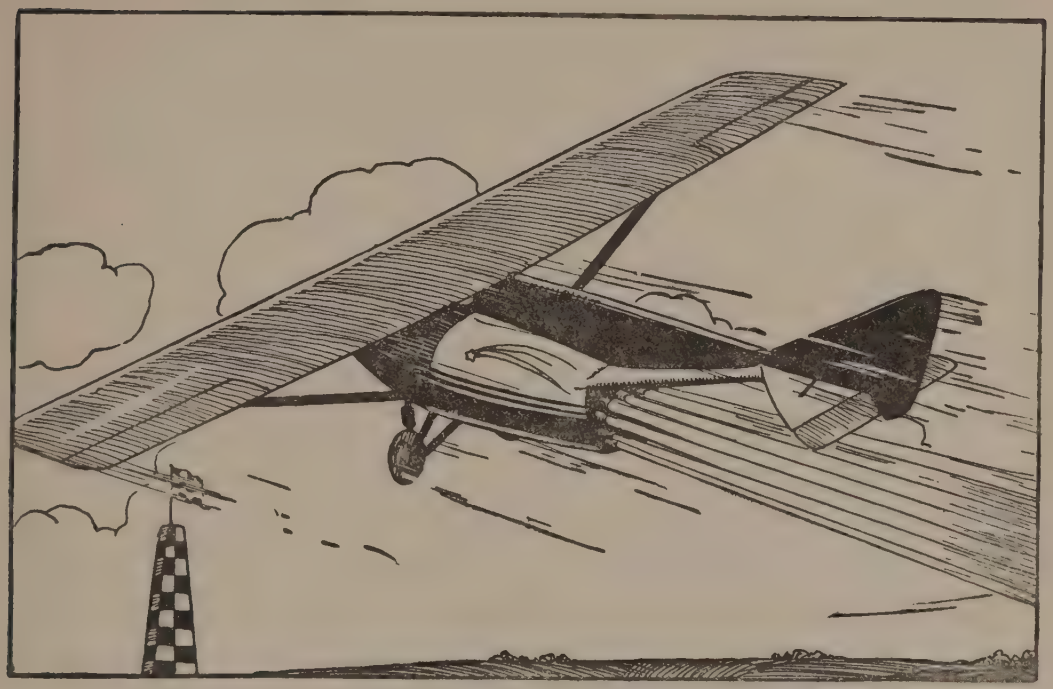
Some have died, but all great inventions leave in the wake of their progress a list of names of those who helped to their greatness.

The sceptics had forgotten Fritz von Opel, of the world-famous German Opel car company. For some years now this rocket car pioneer has been experimenting, and there is no doubt but that he has made headway.

The whole world was astounded in June, 1928, when he tried out a rocket car on railway lines. He did not blow himself to atoms. Neither did the machine break down. He succeeded in achieving a speed of over 156 miles an hour !

That speed has made Fritz von Opel go forward, convinced that the rocket car has a future.

But the rocket car is not the end-all of his experiments. Von Opel



sees in the rocket propelled car the forerunner of the rocket aeroplane, a machine that will achieve far greater speeds than even our modern Schneider 'planes. Remember how the adventure story writers, weaving romances of the future, placed their heroes in machines suspiciously like rocket 'planes? Did not Jules Verne tell of an amazing ship that would journey beneath the surface of the ocean and rise at the bidding of its driver? Was not the aeroplane as we now know it predicted in the imaginings of the novelists?

Perhaps these fancies gave the groping inventors their idea; the gleam of light towards a colossal discovery? Who shall say?

There are among my readers those who would point out to me that the rocket car which brought Fritz von Opel renown is no more; that when he tried to attain an even greater speed with it, it blew to pieces.

Aeroplanes of the past however, had their beginnings and their speedy and often untimely endings. But just as a baby crawls before it walks, and walks before it runs, so do these inventions mould themselves eventually into something that is proof against all that Nature would do to make them a failure.

THE ROCKET AEROPLANE

Fritz von Opel was not disheartened by the blowing up of his rocket car. Rather, like the pioneer he is, did he see where it could be improved. And he has improved his rocket car until he has a rocket aeroplane, which he can fly without fear that it will suddenly explode and send him to eternity.

Von Opel commenced his experiments with a powder rocket. It was this type which was found to be dangerous, so he thought again. Weeks he spent over his problem until at last a remedy suggested itself. Why not a liquid-filled rocket. Similar to a petrol engine, you may say; but different because it gives far greater power.

This rocket car pioneer has taken a rocket aeroplane into the air. Do not smile when I record the fact that the machine rose only fifty feet in the air; that it crashed on landing. Compare the feat with what was achieved by the first airmen, and you will agree that Von Opel's performance marked a new page in the history of invention and man's ingenuity.

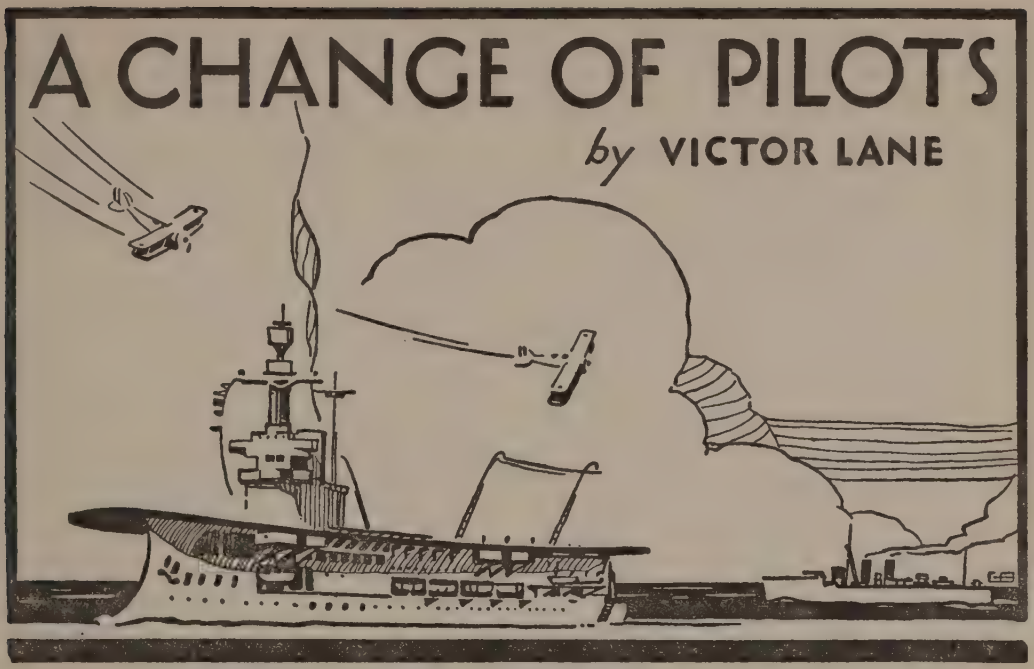
It has been suggested that when you are grown men—before even—aeroplanes may be hurtling through the air to other planets. Yet scientists have said that our modern aeroplanes could never do the thousands of miles because so many powers are in the ether to prevent them. There is the dead space beyond the gravity area in which the machine would float without gaining on the planet for which it was making. There is no aeroplane that could carry sufficient fuel. There is beyond that gravity belt dangers of which we know nothing.

But how different the tale would be with a rocket 'plane—a man-made rocket to rush through the air at undreamed-of speed, and carried ever onward by a power that wars with Nature and wins!

Von Opel and those who are experimenting with him see this vision, just as the aeronauts of old visioned the Channel crossing. Perhaps they dream of even more wonderful things. We must watch these rocket 'plane makers, and treat them seriously. For they are on the eve of a discovery which may well revolutionise aviation.

A CHANGE OF PILOTS

by VICTOR LANE



IT all happened so quickly that Malcolm Chowne, Pilot Officer in the Royal Air Force, and a guest of the Sub-Lieutenant in charge of the *Malaga's* gun-room, was still in a state of bewildered amusement.

Dinner was over and glasses of port stood on the table in front of the senior officer and his guest. The noisy chatter from the far end of the table made conversation difficult. The rowdiest were two cheery midshipmen, both guests from H.M. destroyer *Thruster*, and addressed respectively as McPhail and ' Buggins.'

Suddenly the table, poised on the raised knees of intervening members of the gun-room, and propelled smoothly and evenly by the " mob " at the far end, rammed the President of the mess in the chest. . . .

The Sub-Lieutenant raised himself slowly from the deck, his white shirt front splashed with gory port. He was unruffled.

" Dogs of War. Oust ' Buggins ' and McPhail," he commanded nonchalantly.

Then there ensued a wild scrimmage in which the two guests from *Thruster* fought gamely against overwhelming odds to prevent themselves being hustled from the room.

Unsuccessful, the " Dogs of War " were at length called off. A deft

twist to their black-ties, and all was decorum again. It was at this moment that a messenger brought a note for young Chowne.

Excusing himself, he opened it and then communicated its substance to the Sub-Lieutenant.

" I have to be in the air at 7 a.m. to-morrow," he said. " I'm awfully sorry, but I'm afraid that I'll have to push off at once."

He turned smilingly to Jack McPhail, who was now standing by his elbow. " It also says that I can take a couple of passengers. Most unusual, but—care to come ? "

" Sure ! " exclaimed Jack, eager to add more to his numerous hours in the air. " Like a shot. ' Buggins ' and I will be there, pronto."

" Here. I say. . . . Don't be so beastly friendly ! " boomed " Buggins" from somewhere about the region where his mess jacket buttoned. " In future I'm going to fly with one foot on the ground."

" Ha ! ha ! " guffawed Jack, " I always laugh at that joke from sheer force of habit." Then, turning to the highly amused Pilot officer, added : " It's all right. We've been given leave for to-morrow, and were wondering what we should do. We'll be there, and many thanks."

Morning found the two chums on the tarmac at Assoudia aerodrome, rigged out in Sidcot suits, flying boots and gloves, and awaiting Chowne, who had been called to the Flight office.

" Phew ! " boomed " Buggins," taking off his helmet and wiping his forehead. " Now I know why sheep always look so sad in their woolly coats. If you see a spot of grease presently, don't step on it. It might be me."

" Don't grouch," said Jack, " and climb back under your helmet. Chowne's just coming."

With parachutes flopping against the back of their knees, the three waddled across to where their machine—an *Elfin* three-seater—was ticking over.

The second cock-pit was large and roomy enough for them both. In fact it was possible to lie in the bottom, if one wanted to do so. The two lads were helped in and safety belts fastened.

Malcolm Chowne tested everything and waved away the chocks from the wheels. The throttle was opened and the *Elfin* sped quickly over the ground, and took off in a zoom that had the two lads grabbing for everything in sight !

The pilot came out of the zoom at last but continued to climb upwards.

Below them, Jack and "Buggins" looked down upon Egypt—a broad expanse of dried, light brown earth, only relieved by the darker vegetation that bordered the Nile's waters.

At 17,000 feet the aeroplane had reached its ceiling, and could rise no higher. Fighting its lonely way through the thin atmosphere, it took on a slow swinging motion, like a ship in a long swell. For at great heights there is a ceaseless flow of air, moving in long waves towards the pole. Often these waves are a hundred feet in height, the troughs sometimes visible from the earth in the form of parallel bands of clouds. Across these the aeroplane travelled as though on a switch-back.

Jack and "Buggins" felt icy cold and were thankful for their warm suits and gloves. Owing to the lack of oxygen, breathing had become laboured. Their nostrils felt clogged, and snorts to clear them blew out clouds of snow.

Taking occasional quick glances over the side, where the icy cold air, rushing in spate from the propeller, almost froze the blood in their faces, they saw far away below, the darkened colour of the earth, which now appeared bowl-shaped, the rim rising to meet the thin, blue-tinged haze which concealed the horizon.

Both felt a curious detachment from the world below. It was interesting, but seemed to have no personal point of contact.

They had been flying for about thirty minutes, when they noticed patches of cloud begin to form below them. These rapidly increased in number and size, and, in places, their solid looking walls towered far above the machine. Jack and "Buggins" were fascinated by the majestic columns and the frozen billows, gleaming white in the sun's rays.

Malcolm Chowne had, at first, displayed no anxiety concerning them, but, as he became walled in, and saw their colour turning from white to green he grew worried. He turned his head as though he wanted to speak, and Jack, undoing his straps, got up and bent over towards the other cock-pit.

"Are you both strapped in?" shouted the pilot.

"Yes," called Jack into his ear. "Why?"

"May turn upside down in the clouds," was the laconic observation; but even as Jack was strapping himself in again, a lane appeared between the clouds, and Malcolm Chowne quickly banked and darted towards it.

They reached and entered the narrow gap, and, almost immediately, the nose dipped abruptly and they began to hurtle earthwards, tension wires humming distressfully.

Malcolm Chowne fought with the controls to steady the machine, now rocking and plunging wildly like a barrel in a weir pool. In an effort to maintain height he opened out the engine. There were a few feeble bursts, a disconcerting flutter of the airscrew, and then—silence.

The engine had cut-out !

Flashes of intense blue lightning began to jump from cloud to cloud across the lane, sometimes missing them by what appeared to be but a few feet. The faces of the three fliers took on a sickly hue. They were trapped by nature's wildest element !

The lane narrowed, and the wings now brushed the sides of the clouds. They were tumbling down at the speed of knots and Jack and "Buggins" clutched wildly at the sides of the cock-pit. Upside-down one moment, then thrown violently upright the next, by a contrary flick of the turbulent air which was cascading down the sides of the thunder-cloud.

The aeroplane creaked ominously at the rough usage. At any moment the stresses might cause some part of the machine to fracture. A small rent in the fabric covering of the wings, and the machine would have been stripped to her frame in a flash.

Watches are futile recorders of time under such conditions. Seconds seemed like hours between Malcolms's innocent dive towards the lane, and the last smack of an outraged gust that threw them abruptly out once again into the clear air below.

Young Chowne, who had had an experience he would never again repeat, immediately straightened out at about 5,000 feet, and, scudding beneath the cloud, again tried the engine.

Keeping the machine in a straight glide, he went through all the stock remedies to bring the engine back to life. But at last he had to confess that he was beaten.

He looked over the side. Below them, steaming towards Alexandria, he soon spotted a ship. The long broad open deck, the superstructure and funnels massed all on the starboard side, tokened her nature. She was an aircraft carrier, probably the *Falcon*. Confirmation, if such were needed, lay in the destroyer which always accompanied her to pick up "ditched" aircraft.

If they continued to glide down to the water, they would crash on "landing," and be drowned before the ship could lower away a boat. On the other hand, they had their parachutes, and the greater the height at

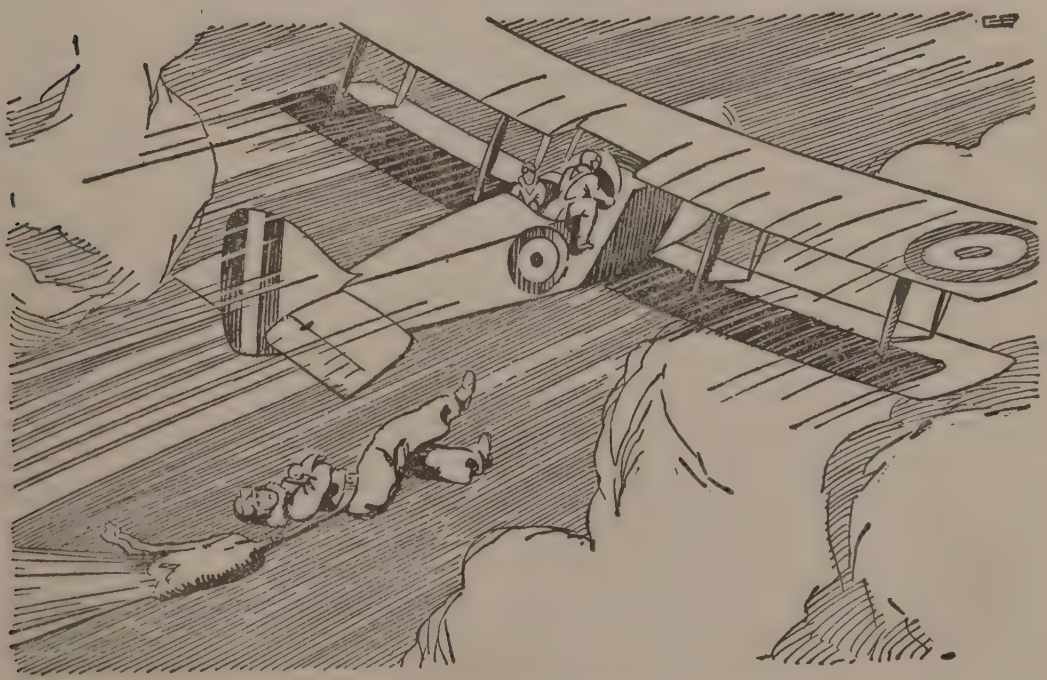
which they "stepped," so much more warning would the *Falcon*—or the destroyer—have to prepare for their rescue.

For a brief and precious moment, Malcolm Chowne struggled with indecision. Then he motioned to the two midshipmen behind him to get ready to jump. Meanwhile he continued to pilot the machine towards the weather side of the *Falcon*.

Jack looked over the side and his courage faltered. It seemed but natural to hang on to something material like the aeroplane, rather than trust oneself out there and hope that the parachute would open. It is the same feeling that makes the nervous swimmers cling longingly to the bank, unwilling to trust themselves to the water.

Chowne looked round and noticed the boys' hesitancy—and could not bring himself to blame them. He himself would have preferred to have been the last to leave the ship ; but he alone appreciated how vital the time factor had become. From now, they would be losing both height and correct position.

He must lead the way. He put one leg over the side of the cock-pit,



With a smile of encouragement he dropped.

slung his parachute case over next, then his other leg. He was ready, and, with a smile of encouragement—dropped !

Jack's hesitancy vanished ; but, as he stood with one leg over the side, prepared to follow, he was amazed to see Chowne's parachute, after opening honestly enough, suddenly dart to the left, swing round in a curve, until hidden behind the nose of the aeroplane, then dart as suddenly from round the tail, as though racing on a circular track !

For three or four circuits, Jack stared pop-eyed and bewildered. The speed had increased so rapidly. He could hardly distinguish it, as it flashed by. It rose towards the machine. Now it was level with Jack, who thought he caught a glimpse of Chowne's white scared face. The whole thing only took five seconds.

Jack called to "Buggins," and glanced around. His chum was lying crouched in the bottom of the cock-pit. Swiftly Jack recalled that, when he had hurriedly unfastened his own safety strap, he had glimpsed "Buggins" do the same, and then stoop down, as though to pick something off the floor.

In recovering his position, he must have hit his head against some knob, and been temporarily stunned. Yet he seemed fully conscious now, and, struggling hard, was endeavouring to rise.

"I can't move !" he shouted to Jack. "Don't wait. . . . Go, man —Go !"

Jack's first instinct was to bend down and lend him a hand. But he stopped. And that pause saved both their lives. For in a flash the reason for it all darted through his brain. It was not the parachute that was performing dizzy revolutions. It was the aeroplane !

They were spinning madly towards the sea !

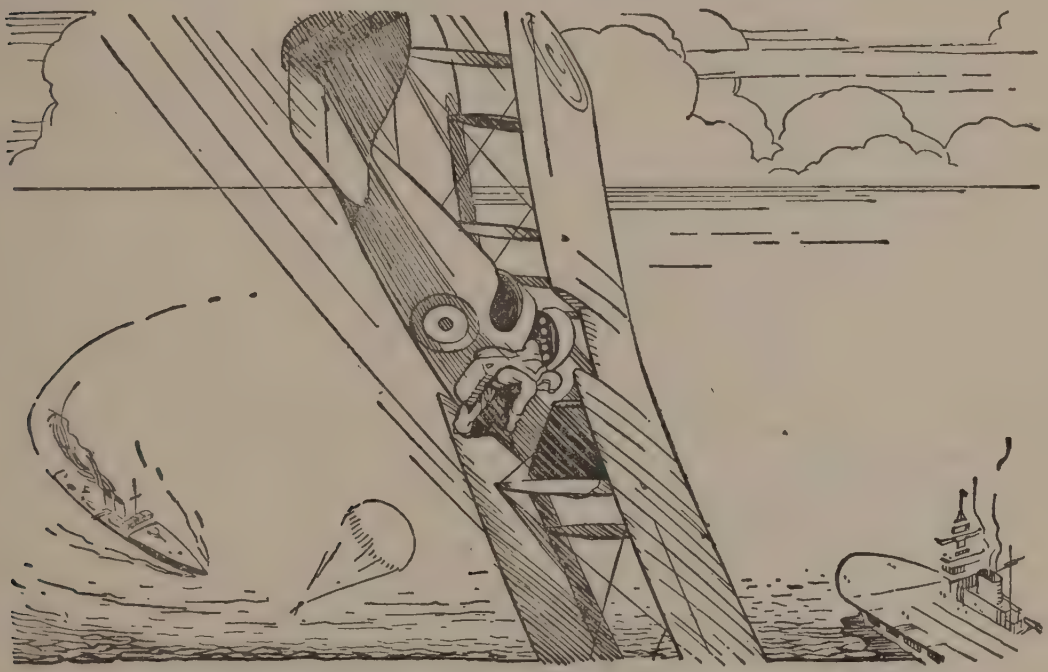
Had Jack bent forward, no power that he could have exerted would have enabled him to straighten himself again. Centrifugal force, which operates so powerfully in a spin, and which held "Buggins" so remorselessly at the bottom of the cock-pit, would have held Jack too, as in a vice.

It had all happened in but a few seconds, and the next few moments were destined to hold as much speed of thought and of action, as is rarely crowded into such a small receptacle.

Jack's alert brain darted to a plan. Fortunately, he was already astride the edge of the cock-pit on the side nearest to the axis of the spin. Otherwise, he would have been thrown off, like a stone from a sling, long before this.

Lifting his other leg over the side, Jack changed legs, placed his left in the metal-shodded notch fitted for climbing into the machine, and the other firmly upon the lower main plane.

Thus set, he bent over, seized the stick with his left hand, and pressed it firmly forward and away from him. Then, trusting to the spin of the aeroplane to press him safely against the side of the machine, he quickly



A sharp glance showed Jack the waters of the Mediterranean only a few hundred feet below.

felt with his other hand for the control wire, which, he knew, ran from rudder bar to rudder, outside the fuselage

Gripping well forward, and exerting all the strength of his forearm, he pulled the wire in the direction of the tail.

It moved. He was pulling against the whole force of the slip stream. Slowly at first, but the effort becoming easier with every inch of success, he fought the rudder back.

The wire entered into his hand, but he dared not let go. The more he succeeded, the nearer did his hand approach to his impeding body. If the "dead centre" position of the rudder were not reached before his body

stopped further progress, then he would be compelled to take another, and longer, reach and to start all over again. But then it would be too late !

His right hand was within an inch of his thigh, his wrists now having to do all the pulling, when suddenly the machine gave a kick. Jack, with an instinctive urge towards self-preservation, snatched with both hands at the edge of the cock-pit, to stay himself from falling, and thus released the pressure on the stick and the rudder wires.

The *Elfin* had come out of its spin and Jack had been deprived of his body support. Further, the machine was about to go into an opposite spin, which tended to throw him off. By involuntarily releasing the controls when he did, Jack had avoided the second spin, and turned the motion into a glide.

A sharp glance showed Jack the waters of the Mediterranean, only a few hundred feet below. He had no time to think. Instinct made him hop quickly into the vacant cock-pit. In the confused sequence of events, he had forgotten the parachute he was wearing, and which he might have used.

Once in the cock-pit, he seized the controls, and his hand touched the throttle lever. Forgetting in the tenseness of the moment that the engine had cut-out, he opened the throttle. . . .

With a short series of resounding pops, and clouds of black smoke from the exhaust, the engine suddenly sprang into life !

Luckily the steep spin had kept the propeller ticking over, though Jack rescued it from total loss, only in the nick of time. For the pressure of the air against the propeller is not great enough to overcome the compression of the engine. Another moment and he would have " lost the prop," and been unable to re-start it.

Jack knew just enough about flying to appreciate that he must not lose flying speed, otherwise he would stall. Easing the stick forward a little until the aeroplane had picked up speed, he then gentled it back through centre, so that her nose started to creep up and the machine climbed away from the threatening waters.

Presently he felt a touch on his shoulder. He had forgotten " Buggins " in the excitement. Now, his chum, released from his terrifying prison as soon as the three-seater had straightened out from the spin, leaned well forward over the space separating the two cock-pits, and shouted in Jack's ear : " Are—we—going—to jump ? "

Jack had a feeling of utter confidence in his ability to fly the machine

For a few tense seconds he waited for his chance.

as long as there was any petrol left. He had put in several hours " dual " with civilian, and unofficially, service pilots. There would be no harm, therefore, in trying to postpone the fatal moment.

" No," he shouted to " Buggins " ; " not yet—unless you want to. . . . Where's the ship ? "

" On our port—quarter," bellowed " Buggins." " It's *Falcon.*"

" Keep her—in sight," shouted Jack over his shoulder.

He was not yet sure of the correct combination of controls to do any turning. His idea was to gain height first of all.

" Buggins " watched the *Falcon* and the destroyer rush at thirty knots towards Malcolm Chowne, who was now nearing the water. After a while, he saw a splash, a boat pull out smartly from the destroyer as soon as way was off, and hurry to the spot.

With immense relief he saw something hauled out of the sea, and presumed that their pilot was safe.

" Chowne's—all—right," he boomed above the noise of the engine's exhaust. " Destroyer—pulled him out."

Jack nodded. He had now gained sufficient height to try a turn. After a few attempts he was able to bank the machine, and turn and fly towards the aircraft carrier.

They had travelled farther than Jack had thought, and, flying into wind, it took some time to pick her up again. He reached her at length, and circled round, not knowing what to do next, and hoping for some sort of guidance from those on board *Falcon.*

It seemed " wet " to plonk her into the " ditch " and hope to be rescued. She was a good " bus " and Jack could have flown her back to Assoudia ; but he did not know the course to steer, and was not skilled enough to land if he got there.

Presently the *Falcon* began to signal to them with a lamp. It was difficult to make out the message, although both of them could read Morse fairly easily. Jack had to fly in circles to keep within range, and this meant that the signaller in the *Falcon* had to follow the aeroplane round, and try to keep the rays on a machine travelling at a hundred miles an hour !

After many false starts, " Buggins " at length made out the signal.

" Keep flying round," he shouted to Jack ; " machine—coming up."

A part of the deck opened, and a squat little two-seater sprang up like a Jack-in-the-box. From the cloud of smoke from her exhaust, they knew she was being started up.

A CHANGE OF PILOTS

As soon as Malcolm Chowne's parachute had opened, he had looked up anxiously to see if the two lads had followed. He could not spot their " brollies " anywhere, but what he did see was the *Elfin* stall and then drop into a spin.

He caught an occasional glimpse of Jack, standing in the cock-pit, as he thought, and was torn with fears for his safety. He could not imagine what had happened to " Buggins."

The last he had seen of the machine was as she started to come out of the spin. After that his whole attention had been directed to the question of slipping the parachute harness, ready for his plunge into the water.

His self-abasement as he neared the *Falcon*—to which the destroyer's whaler was taking him—and knew that the aeroplane was flying again, with engine firing freely, may well be imagined.

It was only after he had boarded *Falcon*, and had related what had happened, that some senior war-time pilots explained. The electric field, in and near the thundercloud, they said, had affected the magneto and caused the cut-out. As soon as the machine had drawn away from the zone, all was well again. But very few pilots knew of this.

But Malcolm Chowne felt that he had lost " face " by quitting. Further he was anxious for the two snotties, whom, he felt, he had presuaded to come on this cruise.

He therefore begged of the Commanding Officer to let him try to regain the aeroplane, to rescue the two lads, for the good name of the Service, and to recover his " face." Understandingly, the Wing Commander had consented, and Malcolm had soon completed his arrangements.

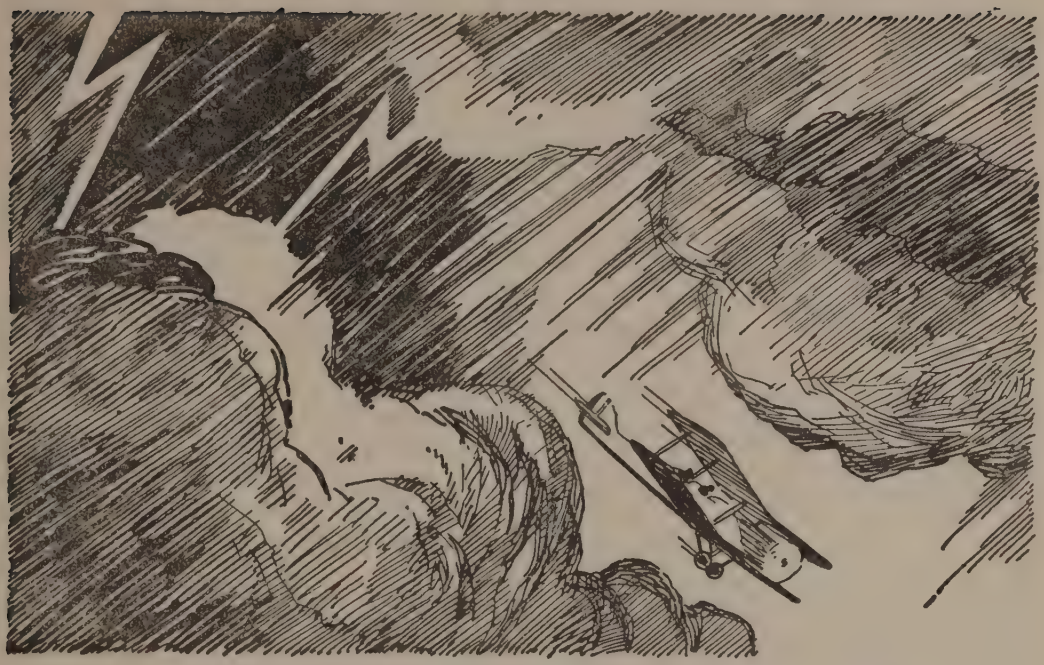
Jack and " Buggins " watched the aeroplane climbing rapidly towards them. They soon recognised Chowne in the front cock-pit, and a second pilot seated behind him. From the struts of the centre section, a couple of fathoms of line curved in the slip stream, the other end being fastened to the axle of the landing wheels.

Malcolm Chowne motioned to Jack to shut off his engine. Then he yelled to him :

" Well done, Jack," he said. " You're doing fine. Keep flying level, on about three-quarter throttle, your eyes glued to some point on the horizon. I'm going to drop on to you. Steady does it. . . ."

Jack waved his hand in reply, and re-opened the throttle.

" Buggins " watched Malcolm Chowne, as he climbed very slowly out of the cock-pit, on to the lower wing, and then hand over hand down the



Flashes of intense blue lightning began to jump from cloud to cloud.

rope until he reached the axle, which he straddled. He had no parachute, for he had lost his own and none are provided in aircraft carriers.

The second pilot manœuvred the two-seater until it was over, and a little ahead, and to one side of the *Elfin*. And so the aeroplane formated, until they were steady on their course.

" Buggins " now saw Chowne lie down on the axle, in such a manner that he could grip the port landing wheel in his hands. He took a firm hold and then altered his leg grip until he hung, flat out below the axle.

Chowne knew better than to drop feet foremost on to the fragile wing and smash through its fabric. For a few tense seconds he waited for his chance.

Perspiration stood out on " Buggins's " face and leaked below his helmet as he watched. Jack's every nerve was taut as a flying wire in his anxiety to maintain the aeroplane in equilibrium, to prevent rocking and yawing. He was dying to take just one look. But he stuck out his chin and concentrated on the job in hand.

A CHANGE OF PILOTS

After the strain to which they had already been submitted, the suspense was intolerable.

Then Malcolm Chowne let go!

"Buggins" gave a hoarse cry—strangled half-way—as he saw the plucky pilot officer disappear in front of the wing. He had missed!

By a fraction of an inch, Malcolm had fallen in front of the wing. Then the slip stream had carried him just a fraction closer, and, with his left hand he managed to touch—then grip—one of the main struts.

The wing dropped abruptly as it took his weight. The next moment it canted sharply upwards, almost throwing him into the sea, as Jack over-corrected.

But as the wing rose, Chowne took a grip with both hands, swung his legs up and in a flash was on the leading edge of the wing.

Hardly pausing, he steadied himself and then began to move along towards the centre section of the *Elfin*. Reaching it, he climbed down on to the lower wing, and then, reaching over, closed the throttle and took the stick from Jack's hand.

"Can you climb back to the other cock-pit, Jack?" he asked. "I'll hang on to this now."

Jack smiled and started to get up. Now that the strain was over he was shaking like the fabric on the fuselage. His face was as colourless as the machine's doped wings.

"Buggins" saw how it was, and, leaning well forward put his strong arms below Jack's armpits, and slowly pulled him back to the rear cock-pit. There he fastened him in his bucket seat, while Malcolm Chowne took the vacated place.

The two-seater came up alongside and both pilots cut their engines. They could hear the sirens of the two ships below, sounding their recognition of a splendid achievement carried out "in the ordinary course of duty!"

"Come aboard—and look us up—when we get in," shouted the two-seater's pilot.

Chowne waved his hand in acceptance. He was too beaten from his experience to shout back.

"Bring the lads with you," added the other, and then banked away.

"Still feeling a bit 'part-worn,'" asked "Buggins" sympathetically.

Jack nodded. "My head seemed to be flying round in circles, and having head-on collisions with itself," he said, wanly.

By courtesy of Flight.

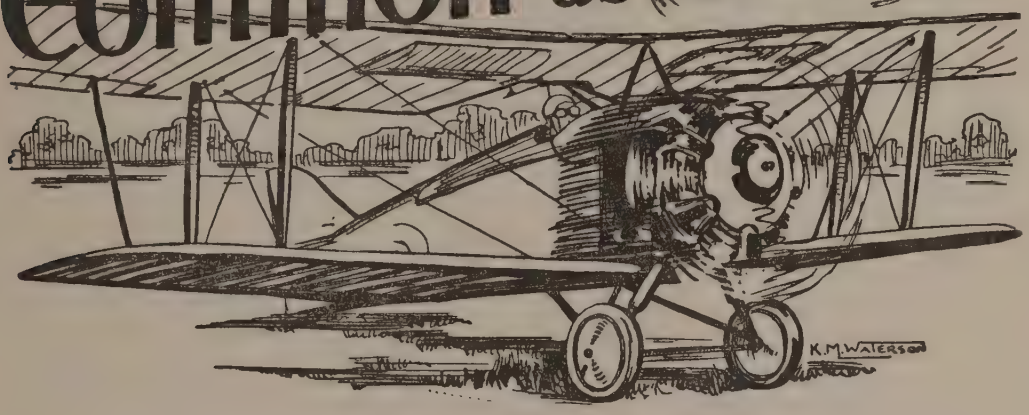
A Westland Wessex monoplane.

T.A.

By courtesy of De Havilland Co.

An aerial view of Stag Lane Aerodrome. The home of the De Havilland Aircraft.

When Aeroplanes are as Common as Cars



By SIR ALAN COBHAM, K.B.E., A.F.C.

DURING the past few years the science of flying has advanced by leaps and bounds. Remarkable long distance flights have been accomplished, new height records have been set up, and in many ways it has been demonstrated that travel by aeroplane is as safe as any other means of transport.

The number of private owner-pilots has steadily increased, and there is no doubt that there would be a greater increase, out of all proportion to the present numbers, if only we had enough aerodromes and landing grounds in the country. These, however, will be laid down before long.

Women have taken to the air as quickly as men, partly because the control of a plane is not difficult and partly because they have realised that there is little danger in flying.

In taking up flying there are various set principles which must be learned, but these may quickly be grasped by any ordinary person. You must, for instance know something about the wind, and why a plane must take off and land *into* the wind. You must know, too, a

certain amount about the weather—although the Air Ministry will always supply private fliers with information and weather forecasts—but the actual control of the machine is simple.

You have no gears, clutch or brakes to worry about, as with a car, and once in the air the machine will look after itself for long distances.

Some people have the quaint idea that if the engine of a plane fails there can be nothing but disaster. Nothing could be further from the facts than this mistaken notion.

When the engine of a car breaks down—as even the best engine may do—the car merely comes to a standstill after running for a short time through the momentum with which it was moving. During the "coasting" the driver can steer the car alongside the kerb or into a side street if he wishes—there is no need to stop in the middle of the road and impede other traffic.

Something similar happens with a plane, except that in this case the machine can coast or glide for very long distances. From a sufficient height it is possible to travel for miles with the engine of a plane stopped. In this way the pilot is enabled to select a suitable landing ground, and come down to make the necessary repairs.

To-day it is possible for any one to learn to fly at the cost of a few pounds. In various parts of the country there are schools and clubs where you may take lessons and become a qualified pilot. After that you may hire a machine and fly alone, and the cost is no greater than that of hiring a taxi.

There are, of course, various tests for would-be pilots. In the first place, you have to be physically fit and you must pass in this respect. Then, by means of apparatus on the ground, it is possible to ascertain how you would react to conditions in the air. This apparatus consists of the cockpit of an aeroplane with the controls connected to an arrangement of white and coloured lights. The number and position of the lights glowing indicate the difference between the position of the "aeroplane" in the normal position and in the hands of the "pilot." The time taken by the would be pilot to react to air conditions is also recorded electrically.

An hour's flying costs £1 10s., including the services of an instructor. The average person should complete a course of lessons in eight or ten hours.

A great number of people have already learned to fly in this way,

although few of them actually own their machines. That most of them will do so eventually I have not the slightest doubt. Already machines are being manufactured on the mass production principle, and the cost of them will be reduced drastically.

The chief drawback to private ownership, as I have mentioned, is the scarcity of suitable landing grounds. Few people can afford to pay a farmer for the privilege of landing on his land quite frequently, and still fewer can have a 'drome of their own! During my tour of the country in 1929, however, I visited a great number of sites for local aerodromes, and pointed out to the authorities the benefits that would arise through setting out a proper landing place.

The result is that to-day many towns have plans in hand for landing grounds and fully-equipped aerodromes, and we may hope that within a very short time the chief obstacle to advancement in the air will have been removed.

It is possible for us now to look ahead to, say, 1940, when every town of any size at all will have a landing ground, just as now it has its railway station. No business man will think of travelling long distances by any other means than flying, while people of quite modest incomes—the people who just manage to keep cars now—will be running a 'plane as a matter of course. Every boy at school now is an airman of the future.

All countries will be drawn nearer together, for it will be as easy to go to Germany or Switzerland for a week end as it is now to go to the coast. The Atlantic will definitely have been conquered from a commercial viewpoint, and there will probably be a trans-Atlantic air service before the end of another decade.

Already great distances, such as to India and S. Africa and back, have been covered by women, proving that no particular training or stamina is required for air travel. The Duchess of Bedford, although over sixty, began to fly a year or two ago, and is now an accomplished airwoman. Like most other flying people she is no longer awed at the idea of covering a thousand miles in a day.

Moreover, if some hitch occurred on the flight she remained quite cool, confident in the knowledge that there was little real danger. That is the right spirit, the air-mindedness which I should like to see more common. Lots of elderly people are still inclined to regard the aeroplane as a new-tangled invention, and would not go up a thousand

feet for a thousand pounds. It is the youngsters of to-day who will make Britain a flying nation, and upon their use of flying depends the greatness of the Empire in the future. Of all the many children to whom I gave flights I never detected a single case of nervousness, although frequently grown-up people are uneasy on their first trip. The fact is that the boy knows more about aviation than his father.

I should like to see a flying club started in every school, with flying lessons as part of the ordinary training. If every town had just one 'plane it would mean that many thousands of children could get an idea of flying in preparation for the time when they would fly themselves.

Aviation is a fascinating subject, linking up as it does engine construction and aeroplane design. What boy is not thrilled at the very idea of flying—we must not allow a very natural enthusiasm to die without developing it.

It would be an excellent scheme, too, to arrange school trips to the nearest aerodrome, where machines and methods might be studied closely. You cannot for ever be enthusiastic about a subject on paper but if you can get to the real thing occasionally the keenness will be re-born. I am certain that the lesson on flying would be the most popular in the day's work.

It is a pity that more people do not take advantage of the opportunities to fly. There are many men with expensive cars, when at less cost they could own an aeroplane.

An excellent little machine can be bought now for three hundred pounds second-hand—the cost of a light car—and the running expenses are not really high. The garage and cleaning costs only about a pound a week while a two-seater plane will do twenty miles to a gallon of fuel.

The insurance is a very big item, but many people insure against third party risks only, and so cut down their expenses by a full two pounds a week.

Actually a two-seater plane will carry a full load for less than 3½d. a mile, so that a trip to the Continent for a week-end would not cost a very great deal—certainly less than first-class fare by train and boat.

Incidentally, there is a fine career in the air before many who are boys to-day. As flying develops, its branches will become more numerous, and each of them will offer scope for new airmen.

A trained pilot can always find a job, even now, and positions will

be even more numerous in the future. Banks will send money by air, important messages and valuable freight will always go by the shortest, quickest route.

More and more pilots will be required as the air routes develop, and I have no doubt that there will be ample scope for air-taxi pilots running their own planes.

There are various ways of receiving a thorough training as a pilot, and more ways of using that training. The Royal Air Force offers a thorough training, and some of the best pilots come from the ranks. There are men piloting 'planes for Imperial Airways who began flying in the ranks of the Flying Corps, during the war.

There will, in a few years, be the air chauffeur, a job for a sound, skilled man capable of doing everything with a plane that a chauffeur does with a car.

In fact, flying offers all kinds of careers for boys with the enthusiasm and courage to study and work. There was a time when every youngster thought he wanted to be an engine driver, and then came the passion for wireless operating. Now, there is the enthusiasm for flying. It is a sign of the times—and an excellent sign, too.

Risks Unlimited!

By F. HAYDN DIMMOCK

"YOUNG MAN with pilot's ticket seeks flying adventure. No limit in risk, but offers must be for honest work. Willing go anywhere in the world. Box XX2679."

"What luck! It is as though Fate had brought me to England. If this young man who advertises so gallantly is willing, then all is well."

He was a short, stout little man who spoke these words to himself, not in English as I have written them, but in Spanish, and he was sitting in the lounge of one of London's most fashionable hotels. In the hotel register his name had been written as Captain Garcia.

The captain was a man of action. He folded the newspaper, rose from his seat and walked swiftly to the reception office. The girl at the desk greeted him with a smile which was evidence of the little man's popularity.

"What is it this morning, Captain?" the girl inquired.

"Tell me, please, how do I get to the office of the *Daily Wire*?"

"If you are in a hurry I would advise a taxi. With luck you should get there in ten minutes."

"Ah, of course a taxi. You must know that I was in a hurry."

"I rather guessed that?" replied the girl. "You appear a little excited, Captain."

"That is dangerous. I must be more careful. It is not good to give myself away so. Good-morning."

Exactly ten minutes later the little man was in the advertisement office of the *Daily Wire*. He went to one of the desks, selected a sheet of paper and wrote rapidly. From his pocket he drew forth a coloured envelope into which he slipped the note he had written. Sealing the envelope carefully he handed it to the clerk behind the grille.

With the skill of a detective he watched where the clerk placed the letter, though to all intents and purposes he was studying the sheets of newspaper pasted on the redding boards. He remained by the boards for some time, but presently moved to a corner of the room where there was a table and chairs. Selecting a chair he placed it in a position from which he commanded a view of the whole room.

People came and went, but it is safe to say that not a soul entered or left the room without being seen by the little captain. Every now and then his eyes would wander to the small pigeon hole where the coloured envelope peeped out.

Presently a tall, athletic young man walked briskly into the room. There was a light spring to his step, and from where the little captain was sitting he could see the clear, keen eyes of the man as he stood by the grille talking to the clerk. It was no surprise to the captain when the clerk

He halted by the board and read the letter.

withdrew the coloured envelope from the pigeon hole. The young man took the letter and turned away from the grille, tearing open the envelope as he walked. He halted by the board and read the letter, which he folded and placed in the inside pocket of his jacket. Then without so much as a look to the right or the left he went out through the door, into the street.

A minute later the little captain followed him. The young man was standing by the kerb, apparently engrossed in thought. He waited a full minute, then hailed a taxi, gave instructions to the driver and was driven off.

The little captain also hailed a taxi.

" Follow that cab," he said. " The brown taxi number AX 44989."

. . . . . .

" Very good, my friend," said the little captain. " You followed my instructions perfectly. Please will you tell me your name ? "

" Frank Fayne—and yours ? "

" Garcia—Captain Garcia." The little man bent closer towards his companion. " We are perfectly safe here, eh ? There is no chance of our being overheard ? "

" None whatever. Now please tell me your proposition, Captain. I do not care for all this secrecy. You are not of this country, yet you speak our language fluently. You ask me to bring you to a place where we can talk in private, yet you did not wish to travel in the same cab. You preferred to hire another and follow me. It is all very mysterious, that is why I am anxious to hear your proposition."

The little man took out his cigar case and offered it to Fayne. The young man shook his head.

" I do not smoke," he said, and almost added that it was not etiquette for a guest to offer his host a smoke.

" Pardon my liberty," murmured the captain. " I know it was rude to make the offer, but——"

" You wanted to find out if I smoked ? Is it so essential to your proposition that I should not so indulge ? "

" A flying man must have nerve ; smoke is not good for nerves."

Fayne laughed.

" It seems that you are well acquainted with the qualities that go to make a good airman."

" It is my business, my good friend. Now to tell you of my offer. Quite naturally you are a little puzzled. That I speak good English is due to having spent many years of my life in your country. As to my caution, that is very naturally due to the dangerous nature of my mission. I come from the State of Lorenzo in South America—an unhappy little State as you will know—and it is on behalf of that State that I am anxious to engage the services of a skilled air pilot. My proposition will mean that whoever accepts will have to travel to Lorenzo, so before I proceed perhaps you will be good enough to say whether you are prepared to make the journey."

" I stated in my advertisement that I was willing to go to any part of the world," Fayne answered, " providing the job was honest."

By courtesy of Flight.

The Hawker *Tomtit.*

By courtesy of Flight.

The Flanders Monoplane, 1910-11.

" Ah ! A very wise precaution and one that attracts me greatly to you." The little man's tone was a trifle patronising. " The job I have to offer is a most honest one. It is to aid my unhappy State. We are faced with another revolution, more dangerous, more vital, more dreadful than anything we have ever had to face. There are thousands of honest working people in Lorenzo whose very liberty is threatened by an arch villain named Pedrovitch. He is plotting a revolution and he has gathered a great army together. At present they are hiding in the hills where they are training in secret. But their spies are everywhere. Every day, every hour, important information is carried to Pedrovitch."

The little captain gave a deep sigh.

" My good friend, you do not know how sad my heart is for the people of my country. If this Pedrovitch once gains power." He threw up his arms in a gesture of despair. " But we will fight him to the death. Already we are preparing, and that is why I am here in England. I believe Pedrovitch can be beaten from the air. We have several very excellent machines, but our flying men are not experienced. We need a young man of flying intelligence to take them in hand, train them. Pedrovitch has no aeroplanes. When he sees ours he will get the shock of his life. Perhaps you can guess why I have come to England ? "

" Why, yes. To find your flying expert."

" Exactly." Garcia smiled with satisfaction. " And surely I have found him ? Money ? That is no difficulty. Ask what fee you like for your services for six months."

Fayne did not reply immediately. The possible risks did not worry him at all ; he was endeavouring to get inside the little captain, which was natural when one considered the shortness of the acquaintance.

" I need money badly, Captain," he answered at length, " but if I take on this job it will be mainly for the love of adventure."

" What men you Englishmen are," chuckled Garcia in admiration. " The spirit of adventure has made a great empire for you. Would that we had that same spirit in Lorenzo."

They talked at great length and finally Fayne gave his consent to the proposition.

" I am delighted," said the little captain, rubbing his hands. " We start for Lorenzo at once. I have already purchased the very latest aeroplane and it is packed ready for shipment at Southampton. We shall sail on the next boat."

Three days later Frank Fayne was on the high seas. In the hold of the ship was the great Viking machine—a fighting aeroplane of the very latest design. And every turn of the great steamer's propellers brought him nearer to the biggest adventure of his life.

CHAPTER II

LORENZO is, as Garcia had said, an unhappy State of South America. It was always in a state of revolution. They started like fires and fizzled out in the same way. Yet this latest revolution headed by Pedrovitch promised to be the biggest and the most deadly that Lorenzo had ever known.

Garcia took pains to acquaint Fayne of the deadly peril that lay ahead and he was particularly careful to impress upon the young airman how very much the result of the clash would depend on him. By the time they reached the port of disembarkation Fayne was eager to get to work. The idle days on the boat had dragged wearily. Fayne had noticed that as the days passed the little captain became more nervous. On the last day of the journey he had scarcely spoken a word and for hours he had remained locked in his cabin. In fact, he did not appear until all the passengers had landed.

Fayne was kept busy superintending the unshipping of the huge packing cases. They were hoisted by giant cranes and placed in the railway wagons which were to convey them to the interior. The 'plane had been packed in such a manner as to disguise it from the casual eye. It is doubtful if any one who saw the cases landed realised that they contained aeroplane parts.

It was not until the cases had all been safely transferred that Garcia put in an appearance, and then Fayne would not have known him but for his voice. The little captain had adopted a beard as a disguise.

"You must pardon my appearance, my friend," he said touching Fayne lightly on the shoulder, "but I must take care. I do not wish to be recognised." He lowered his voice. "The cases are all safe, eh?"

"Quite!" replied Fayne shortly.

"That is excellent. Now please listen! We must travel separately. There are spies about and it would arouse suspicion if I journey with you. You understand but little Spanish, which is perhaps as well, but I warn

Fayne turned calmly to the intruder pulling at his tie.

you to be careful. If any of Petrovitch's spies learn of your mission . . . you know what it means—death ! "

" I will take care."

The journey to the interior was uneventful, though Fayne had a feeling that he was being watched. He was extremely careful, therefore, to speak little. Just before the train halted at its destination a letter was brought to him by a train attendant. It was written in English and was from Garcia giving final instructions. He was to go straight to the Palmia Hotel and await further instructions. There was no need for him to ask for a room as they knew of his coming and would be waiting for him.

It was all very mysterious, but Fayne never doubted the wisdom of the little captain's precautions. So on alighting from the train he took his suit case and made for the Palmia Hotel. He was received in silence and conducted to a room on the top floor. The man who had carried up his bag placed it on the rack at the foot of the single bed, nodded towards the washstand on which stood a jug of hot water, and left the room. Then to Fayne's surprise the key turned in the lock.

He was locked in !

Fayne might have been unnerved by the discovery, but he was not. He just told himself that he was a fool not to have asked for the key, and set to wondering why Garcia had thought it necessary to make a prisoner of him.

He was hot and dusty after his journey, and as there was nothing to gain by protesting against having been locked in he stripped to his waist and had a delicious wash. He was putting on his collar and tie when the door suddenly opened, a man stepped swiftly into the room and still, keeping his face towards Fayne, shut the door behind him. Fayne turned calmly to the intruder, pulling at his tie. His quick eyes took in the man at a glance and he saw that he was armed with an automatic pistol. He was a dark, swarthy skinned man, obviously of Spanish extraction, short and thick set with a pair of piercing dark eyes.

" It is usual to knock before coming into a gentleman's room." said Fayne very coolly. " Kindly explain why you chose such a melodramatic entrance."

The man spat out a torrent of Spanish, at which Fayne smiled and shook his head.

" Please speak in English," he said.

" Veree good. His Excellency the President commands that you come with me."

" I have not the honour of his acquaintance," said Fayne, fencing for time. " Why should he send for me ? "

" It is not well to question His Excellency's commands. Don Pedrovitch demands that you come. . . ."

" Don Pedrovitch . . . but he is. . . ." Fayne stopped just in time. In a flash he realised that Garcia might be the rebel, posing as an agent of the government. This Don Pedrovitch was the President elect or else the man was telling lies. He did a bit of quick thinking, deciding to fall in with the man but to keep his wits about him. " Of course," he added. " How foolish that I should forget the name of the President."

The man opened the door for him to pass through, and followed closely on his heels. The hotel was deserted ; at least nobody seemed to be about. at the door stood a covered wagon, on the box of which sat a *muleteer*. Fayne's companion signed to him to mount the steps at the rear of the wagon and no sooner was the young Britisher aboard than the man was in beside him and the vehicle on the move.

They were soon clear of the buildings which formed the small town and were travelling in a southerly direction towards a range of hills which Fayne could see through the open front of the wagon. Presently they struck a rough road which wound up into the hills and Fayne began to grow very suspicious. This was surely strange country for a President to choose for a residence, but he remained silent. His companion did not talk. He sat at the back of the wagon with his legs propped against the side, and though he appeared to be taking no interest in Fayne, yet the young airman was conscious that the automatic pistol was concealed in readiness beneath the fellow's tunic-like coat.

After a while the track led through a wilderness of great boulders and at times it was quite dark as they passed through natural tunnels in the rock. Finally, the wagon halted and Fayne was told to alight. As he stepped down from the vehicle two uniformed men armed with rifles took up position, one on either side of him, and, led by the other man, they marched towards a dobé house set up on one side of a huge square where to Fayne's astonishment a fleet of aeroplanes stood in perfect alignment. But that was not the biggest shock of all. Stacked in one corner of the square were the great packing cases containing the aeroplane which Garcia had brought out from England.

Puzzled, Fayne went with his guard through a narrow, tunnel-like entrance which gave out to a large, electrically lighted cave. Seated at a table in the centre of the apartment was a tall, military man, dressed in a gaudy uniform of blue and red, and gold braid. As the escort marched towards the table the man rose and motioned Fayne to a chair. At a signal the escort and the other soldiers in the place went out.

" I must apologise for the unconventional way of bringing you here," the man said in perfect English, " but there are spies everywhere. You are Frank Fayne, late of the flying service, and you have come to unhappy Lorenzo at the invitation of Captain Garcia. That is so ? "

Fayne nodded.

" Garcia is a clever man, but he is also a fool, and Lorenzo has no place for such fools."

Fayne felt the blood rising to his head, a danger signal that his temper might get the better of him. He felt that he had been duped ; that in his blind, trusting folly and his own opinion of his ability to take care of himself he had walked into the enemy camp. This man was not the President —but Don Pedrovitch, the rebel leader. Fayne controlled his rising temper

with difficulty. He had a vague idea that it would be better to appear to fall in with the rebel's wishes and so learn of his intentions.

" I accept your apology," he answered evenly, " but I shall be glad to have your explanations. You seem to know a good deal about me."

" It is Don Pedrovitch's business to know." The man spoke slowly and very deliberately. " I knew of the aeroplane which Garcia was bringing from your country so I arranged a little surprise for him. The aeroplane is at present outside in the square in its beautiful packing cases. . . ."

" That is impossible," cried Fayne. " The ship has been in dock but a matter of hours. There would not be time to get the cases here."

Pedrovitch threw back his head and laughed.

" Of course not," he explained. " The packing cases which Garcia brought out from England are still at the docks, but they do not contain aeroplane parts. They are, what you call, dummies, eh ? "

" You mean you substituted worthless cases for those containing the machine ? "

" You have brains, my friend. That is exactly what was done, not here, but in England. I told you that my spies are everywhere. The genuine cases have been here for a matter of two weeks awaiting your arrival." He laughed again. " I knew that Garcia would bring an expert with him. That is good, for my fleet of aeroplanes is not of the best and my flying men inexperienced. With the new machine and with your help Lorenzo shall be freed from Garcia and his political fanatics. My men already believe that I shall be President—they even address me as His Excellency. In a short time from now that will be an established fact. Garcia will be crushed, and you will be the means of the crushing."

" What if I refuse ? " Fayne put the question bluntly.

" *Madre de dois !* It would mean death—for you ! This place is secret. Do you think I would risk Garcia knowing of its whereabouts ? No ! It is better that you agree to my terms, my friend. I want your services for three months and I will pay you well, twice as much as Garcia promised. Well ? "

Fayne's brain was in a whirl. He could not as yet appreciate which side was the right side. He had seen Garcia ; he had seen Pedrovitch. Both men seemed sincere. He owed allegiance to Garcia by reason of his promise and the fact that Garcia had brought him from England. At the same time he was in the hands of Pedrovitch. Better that he should play a waiting game and for the time being agree to do what Pedrovitch asked.

So it was decided.

Fayne dined with the rebel leader and after the meal the work of unpacking the cases and assembling the machine was proceeded with. It was at once obvious to Fayne that without him the rebels would never have succeeded in putting the 'plane in flying condition. It was a machine of the latest type, a giant as compared with the others of the rebel's fleet and entirely different in design.

The work of assembling the machine was proceeded with.

Pedrovitch had Fayne under constant observation and when the 'plane was taken up for a test, Pedrovitch himself accompanied the young pilot. The great ship flew splendidly, answering easily to the controls. At first Fayne was content to fly at a low level but as he became accustomed to the feel of the controls he took the 'plane to a higher altitude. Pedrovitch kept up a conversation through the 'phones and from his talk Fayne realised that the man knew quite a little about flying.

Turning the machine away from the hills Fayne took her towards the distant sea, and then it was that Pedrovitch spoke sharply.

"*Carramba!* Not that way. Keep inland. Obey orders or I shall have to shoot you."

Fayne brought the 'plane round in a wide bank and headed once more for the interior.

"Take her down now," commanded Pedrovitch.

CHAPTER III

THE next few days Fayne was kept busy instructing Pedrovitch's flying men in airmanship, but he was careful not to say too much about the new 'plane. The fleet of six machines was of the Fighting Scout type and obsolete as far as modern flying services were concerned.

During these days Fayne's brain was also busy trying to think out a plan to outwit the rebel, for association with him and his men had proved that they were actuated by motives of the worst type. It was personal gain and not the welfare of the unhappy State of Lorenzo that was the end for which they were plotting and planning.

Pedrovitch felt safe in the hills. He had a good supply of food and comfortable headquarters. The luxury of electric light was made possible by coupling a car engine to a dynamo. There was a plentiful supply of petrol; the whole camp was obviously the result of months of careful organisation.

Fayne learnt that Pedrovitch had several of these camps among the mountains, all quietly preparing for the moment of action. The young airman was forced to admit to himself that Pedrovitch was a born leader and organiser. He learnt that the man was a half-breed—a mixture of South American Spanish and Russian—and whilst he was generally amiable enough there were times when he revealed the brutish nature of his character. Fayne came to the conclusion that he was a dangerous man.

He found himself comparing the breed with the little captain and fell to wondering how the adventure would end. He was now certain that Garcia was the man he must serve, and already a plan was forming in his mind to outwit the rebel. It was a daring scheme which if brought to a successful issue would serve Garcia in the best possible way.

The chance for which he had been waiting came at last. The great Viking machine had been loaded with bombs and the Lewis gun in the

forward cockpit made ready for action. Pedrovitch announced his intention of going up with Fayne on a final inspection of his camps from the air. He also wanted to see how the Viking behaved with its full load.

He took his seat in the forward cockpit, loaded revolver in his holster, and Fayne occupied the pilot's seat immediately behind. Pedrovitch gave directions through the 'phone and one after another the camps were passed over until the rebel announced the completion of the circuit. It was as they were heading back for headquarters that Fayne decided that now was the time for action.

He pulled the stick back and the giant 'plane began to climb. At ten thousand feet he levelled out, then banked steeply and brought the machine sweeping round. Before Pedrovitch realised the young Britisher's intention the machine had gone into a swift dive.

The wind sang through the wires and struts as the giant sped earthwards. Pedrovitch rose dizzily in the cockpit, roaring imprecations in Spanish through the 'phone, Fayne pulled out his 'phone plug, locked the stick and leaning forward jerked the gun out of the holster on Pedrovitch's belt, thrusting the muzzle in the small of the rebel's back.

" Jump," he roared. " Use your parachute and jump or you're a dead man."

For a moment it seemed that Pedrovitch would show fight, but he valued his life most as all villains do. He knew he was in a tight corner, knew that death would be his portion if he hesitated. Over the side he went and dropped into space.

Fayne fell back in his seat, grasped the controls and pulled the great ship out of its perilous descent. The earth was scarcely a hundred feet below when he levelled out and shot up in a magnificent sweep, climbing rapidly. Away to his left, swinging in space, was a lonely parachute supporting the body of the terrified Pedrovitch.

. . . . . .

Fayne felt like a bird released from captivity. He was free to wing his way wherever he might choose. Pedrovitch would order his fighting scouts to battle with him but Fayne knew he was safe from attack for at least an hour. He had secretly disabled the engines and it would be some time before they could be put right.

Fayne turned the ship on the course he had just completed and soon he was over the first camp. He could see the men gazing up in surprise at this second visit. The young airman had no desire to take life, but he

wanted to show his might to these men. When over the spot where the ammunition was kept he loosed his first bomb. It went hurtling down, struck its objective and there was an explosion which echoed like a thunder clap in the mountain range.

Fayne visited each of the camps in turn, dropping a visiting card by way of a bomb. Soon he was heading back for the headquarter's camp. As he approached he saw efforts being made to launch one of the fighting scouts to the attack and when he was over the big square the machine took the air. Fayne circled round. He had one bomb left. The square was deserted, the men having taken cover. The bomb went crashing earthwards, dropping in the middle of the stationary 'planes, and even as the roar of the explosion split the heavens Fayne pulled down the stick and the Viking shot skywards with the fighting scout roaring in pursuit.

Crackle ! Crackle ! Crackle !

The Lewis gun of the scout was spitting death, but the Viking was in the hands of a master and the aerobatics of the 'plane made it a difficult target. The bullets went wide.

Fayne could have crashed the little machine but he preferred not to do so. He was like the lion playing with the mouse, but soon he tired of the game, opened up his throttle and went roaring away out of range and out of sight whilst the scout went down with a bullet in its petrol tank.

An hour later Fayne descended on the plain behind the Palmis Hotel. Men ran to meet him as he taxied along, and when he finally brought the giant to a standstill the first man to greet him was the little captain.

" *Madre de dios !* What a triumph ! " He grasped both hands of the young pilot. " You have brought the Viking back as I knew you would. My plan has succeeded."

" Your plan ? " Fayne asked, puzzled.

" Yes. I let them take you because I knew you would beat them ; that you would get back my 'plane and lead us against the rebels. You will know much about them, their camps, their strength in men. We will attack them—beat them—kill the revolution before it really breaks out. It was a great plan, but it needed a man of daring to carry it out, a man who knew no limit in risk. You have done it."

. . . . . .

Fayne did lead the air attack against the rebels, and led it successfully, but that is another story I must tell another time.

Flying Through Darkness and Fog

COLONEL CHARLES A. LINDBERGH

ON the instrument board in front of a pilot are a number of dials which show not only the functioning of his motors, but also the position of his 'plane in relation to the earth. He dips into a fog bank or cloud, and mist swirls around him, almost hiding the ends of his wings. He is alone in a white wilderness in which all sense of direction or relative position is lost.

It is then that he keeps his eyes on his instruments and by them holds the 'plane on a level keel and in the right direction. Without them he would stall and perhaps spin and crash. With the proper use of instruments he is safe as long as his fuel lasts or until he finds a break in the fog and manages to land.

These instruments are a few of the aids to navigation which make flying so much safer now. Others are being invented, and the time will undoubtedly come when a skilled pilot will be able to take his 'plane through any kind of thick weather and land it safely on a field which he cannot see until he touches ground. This seems a rather wild prophecy, but let us see what has been done and is being done in this direction.

When aeroplanes were flown only in the daytime and in clear weather, there was little need for instruments, but with the coming of night flying on mail routes and the demand for uninterrupted service, much more than the instinctive skill of the pilot became necessary. Nowadays he often has to fly " blind," particularly on long-distance flights when all kinds of weather must be encountered and overcome. Flying " blind " means flying by the use of instruments alone, and it imposes a great strain upon the pilot.

His most important instrument in this work is the turn and bank indicator. This shows him when his 'plane tips to one side or the other, or begins to turn—movements which cannot be detected in fog by instinct. He also uses his inclinometer, which shows whether the nose of the 'plane

is rising or falling. There is usually the tendency on the part of a pilot who cannot see the earth to pull back gradually on his " stick " until the 'plane stalls and falls off. The inclinometer enables him to prevent this. The turn indicator and compass show him his direction.

With these instruments the 'plane, turning right or left, going up or down, or banking, can be instantly detected. But it is a strange fact that on a long flight a pilot becomes so weary that his instruments appear to be deceiving him. He feels that he is stalling or turning when actually he is in a straight, level flight, and his instruments are indicating this.

There have been many instances related where this has happened. On a recent ocean flight a pilot felt that his instruments were " off," and he fought an almost overpowering desire to fly by instinct—which he knew would be fatal ! Finally, in desperation, he took his hands off the controls and let the 'plane fly itself for a time, until he gradually recovered his poise.

It is nerve-racking to fly through the night or fog ; hour after hour ; watching the dials. It requires great self-control. Of course, on shorter flights in thick weather this strain is not so evident ; and on passenger routes of the future there will undoubtedly be two pilots who will relieve each other at frequent intervals.

Another aid to flying which is being perfected is the directional radio beam. With this instrument the pilot receives from a fixed point towards which he is flying, a radio impulse which actuates a dial and shows whether he is on the left or right of his course. It is then only necessary to change the compass course to bring the indicator to its normal position. The signal may also be an audible one transmitted through receivers over the pilot's ears. This system has been of use on several Pacific flights.

An experiment is now being conducted in the Pennsylvania mountains, on the air mail route between New York and Chicago, with radio signals sent out from places only a few miles apart. Such devices greatly assist a pilot in straight flight, but not in finding the landing field and coming down on it in fog. There are several experiments being conducted at the present time in the hope of making this possible. In Britain, for example, there have been trials with an electric cable stretched round a field, but at some distance from the field. It can be detected by an instrument on the 'plane, and the pilot knows when he receives a signal that he has passed over a point at a certain distance from the field. If he continues on his course he will receive another signal when he passes over the cable at the other

side of the field. If there are several cables at regular distances sending out signals the pilot will know, as the last cable is passed, that he is within gliding distance.

At this point the pilot makes use of his altimeter, which records with great accuracy his exact distance from the ground. An instrument called a capacity altimeter is now being developed by American army aviation experts. It works on a simple electrical principle, and when perfected will enable a pilot to tell his exact distance above the earth, so that he can set his 'plane down in comparative safety without being able to see the field.

Safety in flying through bad weather in the future will rest largely upon such instruments as this. Fog will not be a serious obstacle, and it will not be necessary to skim along just over the trees, in momentary danger of hitting something unseen. The pilot will be able to leave the perils of low flying and go up to a safe distance until his instruments tell him he is at his destination.

There is one other danger in flying which must be overcome—that of ice forming on the wings. When an aeroplane passes into a cloud at certain temperatures, or when rain or sleet falls on a 'plane at temperatures close to the freezing point, ice is apt to gather on all parts of the machine, particularly on the leading edge of the wing, where it causes most trouble. A 'plane is not brought down so much by the weight of ice on it as by the ice destroying the characteristics of the wings and ruining their efficiency. Ice can gather in a few minutes and cause a 'plane to lose altitude even with full throttle. A number of experiments are now being tried out to meet this difficulty. It is possible that some substance may be found to which ice does not cling, and which can be used to coat the wings, wires and struts.

Saved from the Air

By DONALD CAREW

IMAGINE the scene—the sea in turmoil; the steamer helpless and lashed from stem to stern; water washing over her; lifeboats damaged. Even if they were seaworthy they could never be launched in such seas. The steering gear useless; the vessel sinking.

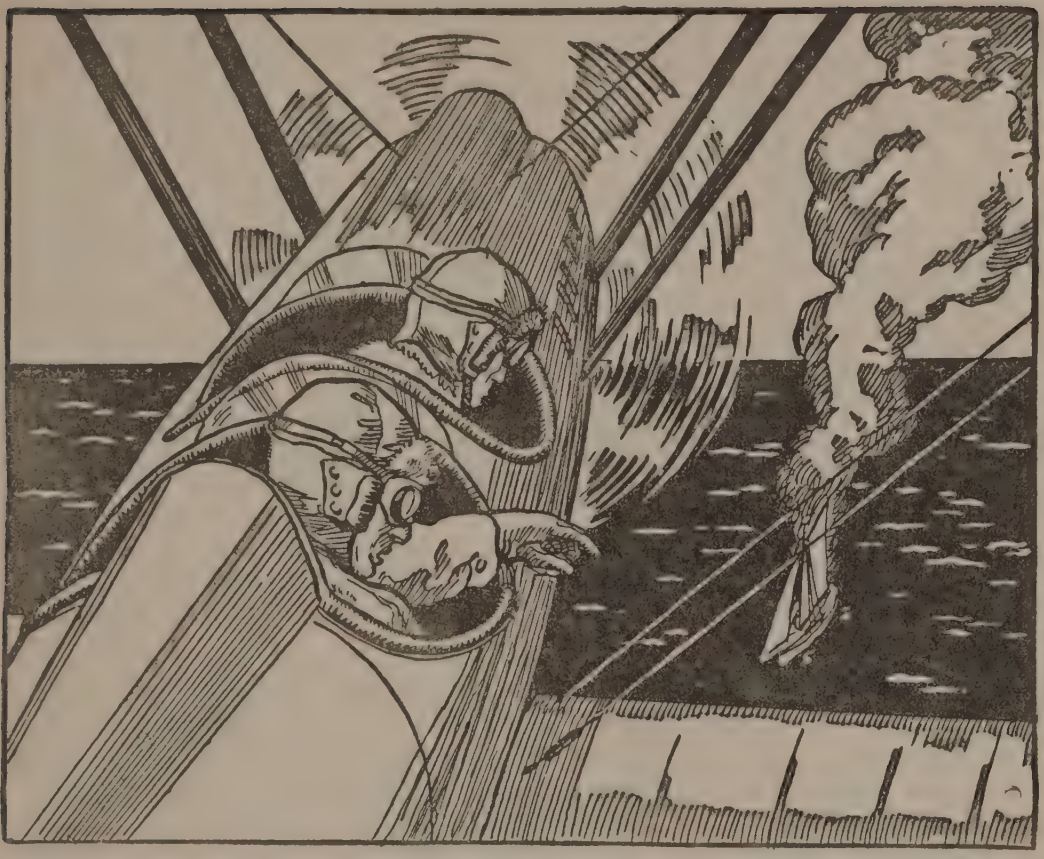
The crew realise that their end has come. There is no hope. The wireless apparatus (if such exist on the ship) has been rendered useless too. Doom awaits. And slowly, despite every effort to keep the ship afloat, the vessel sinks beneath the waves.

Just a little drama of the seven seas; of the perils that confront those who go down to the sea in ships. But a peril that can scarcely exist to-day. Why? Because of aeroplanes! Up to a few years ago even if a vessel received the S.O.S. call, unless it were close to the distressed ship it was impossible to reach her. It is still impossible to get to her—by ship. The rescue work is nowadays often performed by aircraft.

Take the case of the hopelessly damaged Greek steamer in the Indian Ocean. Caught in a monsoon she was battered unmercifully. The crew were giving up their pumping, when they heard aeroplanes overhead—aeroplanes rushed to their aid. The 'planes could not possibly land in such seas, so to calm them down they literally poured oil on the troubled waters! Down they swooped and got collapsible boats afloat. Within a very short time every man-jack of that Greek ship was aboard the aeroplanes which immediately turned for home. Despite winds on every quarter they reached their base in safety.

Then there is the adventure of the airmen off Eddystone Lighthouse. They were returning to their base one day when suddenly one of them called the other's attention to a fishing smack which appeared to be on fire some miles off. The machine at once headed in that direction, and they found the vessel afire, flying distress signals, and the fishermen hard at work trying to get a boat launched.

The wireless S.O.S. went out from the machine, which also made good use of fire extinguishers it carried! The S.O.S. was picked up by a trawler, and the captain at once altered course and steamed



They found the vessel afire,

at full speed for the burning smack. Every one of the small vessel's crew was saved.

Perhaps the greatest and most daring aerial rescue was that performed by intrepid Australian airmen when Captain Kingsford-Smith and Mr. P. C. Ulm, in a flight from Australia to Great Britain, mysteriously disappeared. It was believed that they were somewhere in the vast north-western unexplored territory of Australia and scores of black trackers went out in search of them.

It was impossible to trace them, and thus came aeroplanes to the rescue. Many machines went out. The days passed, and then a pilot spotted the "lost" airmen miles away from the beaten track. But while these two were found, two others—Keith-Anderson and Hitchcock

had vanished in their endeavour to discover Kingsford-Smith and Ulm. They were, it was felt, in those terrible waterless tracks of mid-Australian desert. Several days passed before news came—again *via* aeroplane. A stranded aeroplane had been discovered in an isolated part of the country.

The pilot reported that a man was beside the aeroplane, but he appeared to be quite dead. He himself could not land as a 'plane could never take off again from such a spot. So he dropped a can containing water, sent off his message and raced back to the nearest habitation two hundred miles away.

Water, first-aid equipment, was rushed across the desert to the spot. Two days and nights later the lost machine was found, with Hitchcock's dead body beside it. Not far away was the body of Keith-Anderson. There was a message left, written by Hitchcock, which told its sad story only too well.

> "Landed April 10, 1929," it ran. "Attempted take off. Clearing runway. Increased debility and thirst; unable to make further attempt."

You see what had happened? In that waterless spot the machine had been forced down. The more the two airmen tried to clear a space to start away again, the greater their agonised thirst. And, unable to continue, they had died—instead of the two they had set out to find.

What would you do if you and a chum set out in Switzerland to climb up part of Mont Blanc, and then found yourselves in difficulties? Would you stay where you were with night coming on? Would you make further efforts to escape harm? Would you begin to worry at the thought of extreme cold? What *would* you do?

There was a passenger 'plane pilot who one day saw beneath him two climbers in distress. They had placed handkerchiefs on their alpenstocks, and were waving them.

The airman said to himself: "If they move about they will soon be dead men!"

He had to think quickly. How could he let those climbers know that he had seen them? Wheeling about he took the machine back to the flying ground, got some paint and marked on the underside of his machine: "Keep where you are. We will save you!"

Up he zoomed once again and rushed his machine back to Mont Blanc. Then down he swooped over the spot where the climbers were caught, so low that they could read his message.

Up again and back to the aerodrome. A telephone message sent a party of guides to the mountain, and what were virtually dead men are walking the streets alive and well to this day.

Happily, the vast majority of these air rescues end with lives saved, but one that has a "nick of time" flavour occurred in this manner. Three men vanished in the desert, some eighty miles from Cairo. One of them was a government official, and desert motor-cars, camel parties, and so on, scoured the desert in an endeavour to find traces of them.

It fell to the lot of a Royal Air Force pilot to make a discovery which led to their eventual rescue. His keen eyes made out something on the hot sand below him. He investigated and was astounded to discover the "something" to be a man practically naked. The creature was waving in the manner of a madman. The airman got his machine down as quickly as he could, but no sooner did he climb out of the 'plane than the figure raced away.

The pilot and his observer gave chase, and caught up with the man when he reached a rocky hill. He was quite insane. In a cave another shock awaited them. They found another man, with a gun, as though on the watch for some one trying to kill him. They waited and watched, and soon saw another, a third, man, also with a gun, trying to get in a shot at the other armed fellow.

Both were quite mad, too. The terrible thirst, the heat, their privation, had turned their minds, and these two were stalking each other, intent upon killing!

At once injections were given them. They were carried to the aeroplane and rushed to civilisation where, luckily, they managed to "come back to life." It was then discovered that a band of desert thieves had captured them, robbed them, smashed their car, and put them to flight. So that what you read in the story books is founded on fact, after all!

It was an aeroplane that saved a certain man from paying out many pounds in blackmail. He was in his home one day when to his surprise a peculiar package was delivered to him. He opened it, to find that it contained two carrier pigeons.

But there was something else—a sinister message, which stated that

unless the pigeons were returned to their sender within two days, with £250 attached to the cylinders on their legs, he would be a dead man!

Sufficient to terrify any man! But, you are asking, how did the aeroplane come into the affair? In this way. The man very sensibly went to the police. They got in touch with an airman and asked him whether it was possible to follow a carrier pigeon.

Now you will admit that for a machine to follow such a minute speck as a pigeon in the sky, is no easy matter, especially if the bird has far to go.

The airman decided to try, so a carrier pigeon was obtained and he went to his aeroplane. As soon as his machine was in the air he signalled for the police to release the carrier pigeon. This was done, and he found that, with a great deal of care, he could follow.

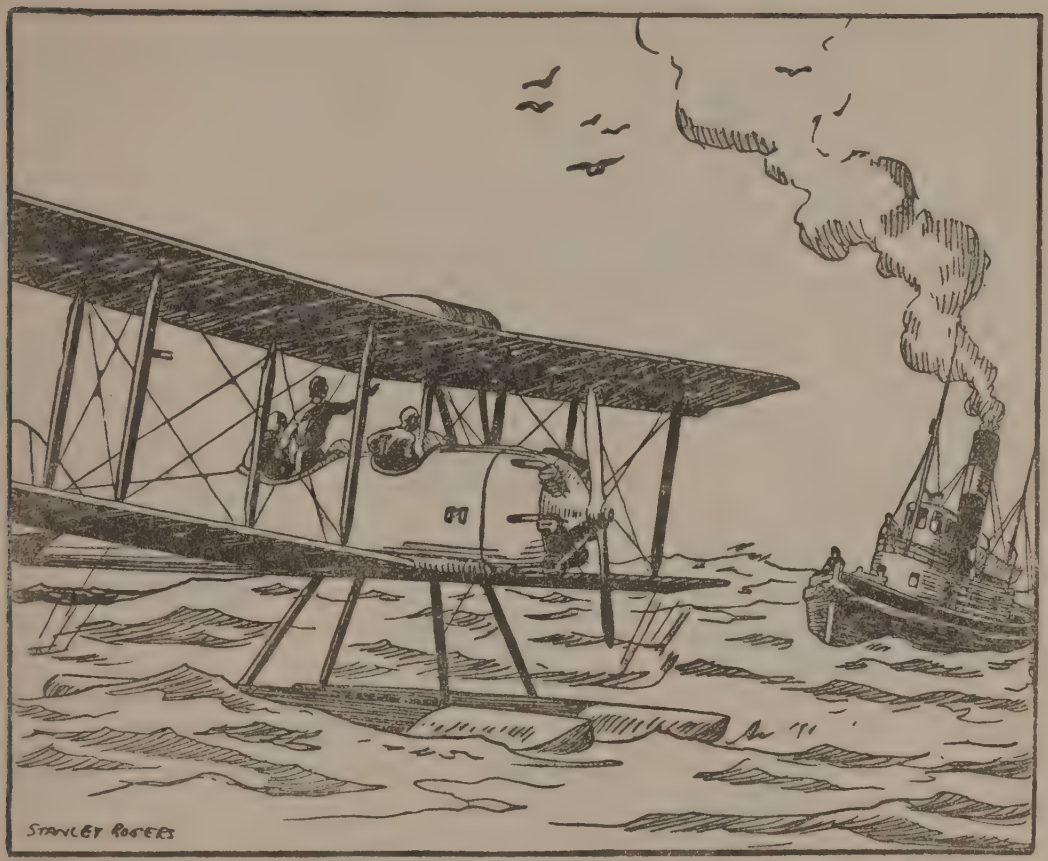
Down he went, and then the police made their plan. The airman would go up again, the two carrier pigeons received should be released, and the airman should follow until they reached the place from which they had been dispatched.

It was a clever plan, for, as you know, carrier pigeons will fly straight back home no matter how far they have been sent away. The airmen ascended, gave his signal, and then followed in the wake of the birds.

Miles they flew, these birds and the bird-man, and at last the birds dropped towards a house. An observer in the aeroplane was waiting for this moment and carefully registering his specially designed camera, he photographed the house. Everything was easy now. The police collected, and arrested the occupant. The fellow was so dumbfounded that it was the simplest thing in the world to extract a confession from him.

Criminals, therefore, are finding still another method being employed against them. There was an American who had to get clear of his country because he was suspected of being mixed up in a terrific brawl which had ended in another man losing his life. He was the skipper of a fast tug and he managed after a long race to escape the attentions of the police launches.

The police, however, did not give up hope. Messages were flashed to headquarters, a speedy seaplane was chartered, and police officers went aboard. The machine took off immediately, put out to sea and after some time spotted the tug. Sweeping low the machine landed. Now the tug skipper, who, let it be said, was not the man to leave any one on the



Sweeping low the machine landed.

open seas in distress, thought that the machine was in difficulties. The police allowed him to think so, especially when he slowly brought his tug alongside!

Imagine his surprise when revolvers were presented at him, and he was ordered to get into the aeroplane. It was useless to show fight in view of the array of weapons against him and he complied without so much as an argument. Very soon afterwards that man was behind prison bars.

But to return to the ways of the lawful, and not the lawless, it is quite common nowadays for aeroplanes to work in conjunction with ice breakers in dreaded winters where seas freeze up. The Baltic is a trap for the unwary, and at times machines have to rush not only food,

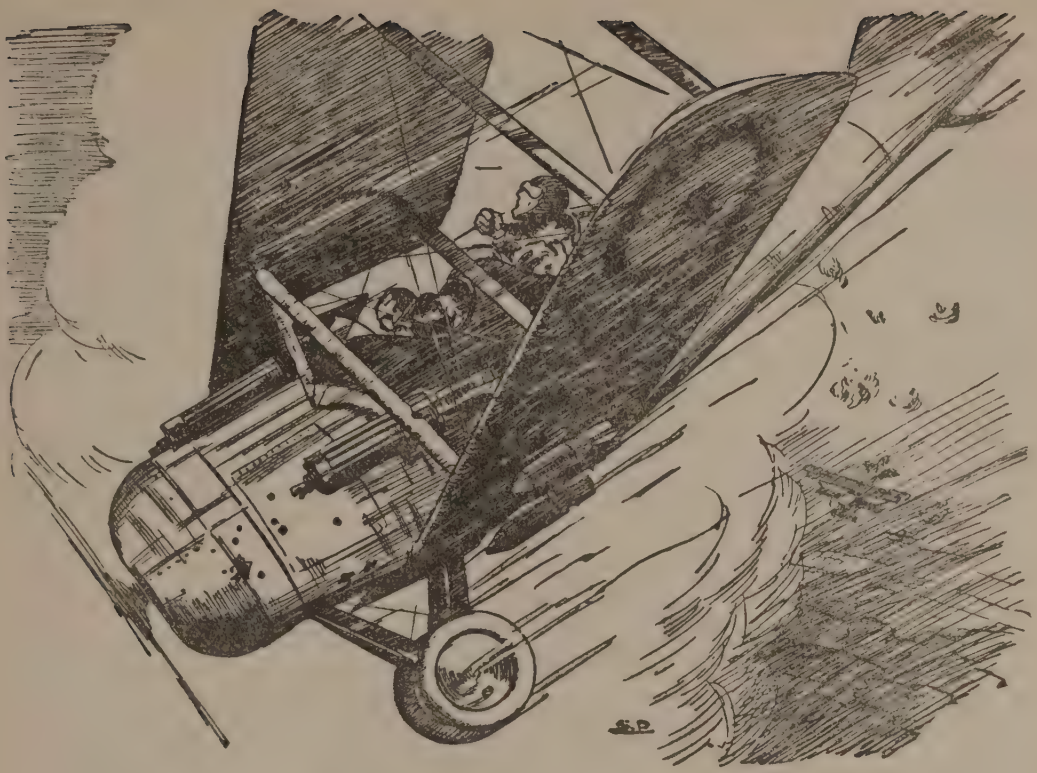
but water and coal, to vessels caught hard in the ice's clutch. The machines will fly over the white expanse and see beside a desolate ship a message marked out in coal dust, in bold letters :

" We want coal ! "

Then there are those airmen who assist in the fight against forest fires. Braving the chance of burning fragments setting their machines afire and sending them crashing into the flames, they send out their wireless messages for aid, and direct operations from their position above, where all things are made clear.

There are aeroplanes kept for rushing medicines to the outposts of Northern Canada, where journeying by any other means must needs take weeks and sometimes months. There was the outpost where the inhabitants were suddenly struck down by the dreaded diphtheria. Large numbers died ; three hundred odd were dying of the scourge when a S.O.S. was sent out to Edmonton nearly four hundred miles away. At once a tiny aeroplane—a British " moth " ; the same type as that in which Miss Amy Johnson flew on her epic journey to Australia—raced to the spot with anti-toxin. Hundreds of people were saved—by aeroplane !

Just imagine for a moment how many thousands of people must have died, in such places ; on the high seas ; at every corner of this world of ours ; only a few years ago, before aeroplanes reached the amazing perfection we know them to be to-day ?



False Flying Colours

By REGINALD H. CLARK

THERE was a strange silence brooding over the recreation-room of the Fifth Flying Squadron's headquarters, a tense, unfathomable silence. Four or five young khaki-clad airmen were seated around the long, scrubbed table, on which stood bottles and glasses, but no one touched either—and no one spoke.

Outside the night was pitch-black; no moon was rising and even the stars seemed to have forsaken this section of the British fighting front. In the distance the guns were still rumbling after a day of unceasing bombardment. But it was not this that caused the dread silence in the headquarters of the Fifth Squadron.

No, these gallant young airmen feared nothing—if they did they would not have been attached to the air-squadron closest to the fighting-line, the squadron that was called upon to accomplish the war's hardest

flying jobs, the squadron that was called upon to face death every minute of the day—and the night, too.

A few hours ago Lieutenant Drew, the youngest officer attached to the squadron, and the gayest among them, had been sent out on a night reconnaisance to discover the whereabouts of a trench-mortar that was causing considerable havoc to the British lines. Drew was the pilot, his observer Sergeant Harvey, a man with a long list of flying honours to his name, and a man who could ill be spared on account of his experience and knowledge of the particular section of the front over which the Fifth Squadron did most of their work. But Sergeant Harvey would have to be spared—there was no choice in the matter!

Less than a quarter of an hour ago the 'plane had returned, riddled with bullets. Lieutenant Drew was alive although three bullets had found their mark. Sergeant Harvey was dead! Seventeen bullets had entered the gallant airman's body!

That's why the silence was so grim, so forbidding. That's why none of the young flying officers seated in that poorly-furnished recreation-room felt like taking any interest in themselves or in one another. Sergeant Harvey had been their pal—and he was gone!

For several more minutes the silence persisted, broken only now and then by the rumbling of guns over on the French front. Then the door opened and the rush of the cold wind set the guttering lanterns swinging, causing the tallow of the candles to splutter in the flame.

Captain Jones entered—he was in charge of the squadron. Not very old himself, he knew how to handle this band of young airmen, many of them scarcely old enough to have left their schools. One of them, Flying-officer Hugh Barry, was barely eighteen and had come out to the front straight from a well-known public school. Some said this fair-haired, fresh-faced strippling of a boy had run away to join the Flying Corps. It might have been true—but Hugh Barry was brimming over with enthusiasm, and within twelve months he had received his commission for his daring and bravery over the enemy lines.

Hugh's face lighted up as the squadron-leader entered the room.

"Now, boys," the officer said with a smile, "don't take things too much to heart. I know it's rotten poor old Harvey going west like that, but it might happen to any of us. And we wouldn't want our pals to fret over it, would we? Cheer up, lads. Let's have a song together."

But before the song could start the 'phone standing in the corner

whirred and Captain Jones crossed to it while the rest of the young airmen resumed their seats, their faces clouding again.

" Hallo . . . yes . . . Jones speaking. . . . I can't hear very well, sir. . . . That's better . . . now ? . . . But . . . but, I say, sir, it's a terribly black night, can't we wait for the morning ? . . . Really, sir. . . . Very well, sir, I'll ask for a volunteer."

With an irritable frown, Captain Jones slammed down the receiver and turned slowly from the little wall-bracket. In an instant the members of the Fifth Squadron knew that something serious was happening.

" Oh, boys," he said, " I'm afraid the song's off for a while. That was General Headquarters speaking—want a pilot to fling his life away, as usual. It seems that Captain Clare, one of our best secret service officers has been captured, severely wounded, and it has been found that he is in the German Emergency Hospital which we accidentally bombed last week as German Central Headquarters. The General says that that British officer must be rescued—must, he says—and to-night too ! "

He paused for a moment, looking full at the expressionless faces of the other airmen. Then he continued.

" Now, come on, lads, I want a volunteer—this must be a solo job. Two might mess up the whole affair. Come, on, one of you—who's it to be ? "

For several moments none of them moved from their seats, then came a movement from the end of the table—Lieutenant Vander, officer with five years' experience in the Flying Corps and an officer with only one sound leg. The other had been partly crippled in a battle with six Hun 'planes.

" I'll go, sir ! " he said, shortly, reaching for his flying togs hanging on a peg near the door. " I know the place well."

Then young Hugh Barry jumped to his feet and strode towards Captain Jones and Vander.

" Here, half a mo', this is a job for a youngster. You're too good a man to go, Vander—I'm the chap for this foolhardy stunt, Captain."

Both men stared at the youngest member of the Fifth Squadron, while his pals also rose from the table and crossed to his side.

" But, Barry, you know what this job may mean and——."

" Oh I know quite well, sir," came the sharp retort. " Here some of

you, help us out with a machine. I'll get it over at once. I suppose I'd better use that Fokker we captured last week. It'll help me, eh ? "

Vander stepped in front of the lad, but Hugh Barry pushed him aside with a grin and, pulling on his heavy leather, fur-lined flying kit, flung open the door, and strode across to the grim shadowy hangar. Captain Jones, Vander and the others followed him.

Mechanics were always standing by the 'planes, for the Fifth Squadron were called upon at all hours of the day and night. And it took two of these experienced men very little time to start the engine of the ex-German 'plane, warm her up and swing her out on to the landing-ground.

Everything was done in pitch darkness—lights would have meant the complete demolition of the aerodrome so close to the firing-lines. The dark-grey 'plane did not even carry the usual riding lights, and it was in this dense blackness that Hugh Barry, his face flushed redder than ever took his final instructions from Captain Jones and, waving a hasty farewell, flung the little fighting 'plane into the night, the men standing on that bleak, black stretch of shell-pocked ground waiting and listening until the whining hum of the engine died away in the distance.

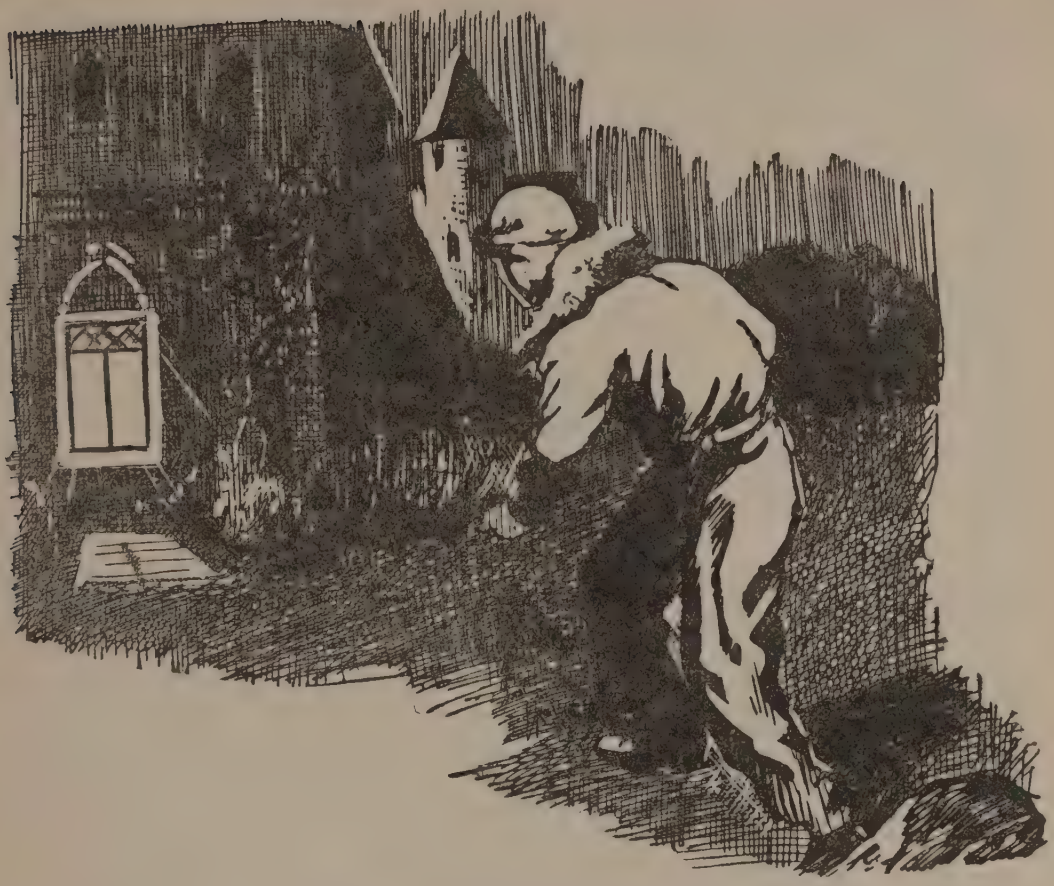
Hugh Barry had gone off—would he ever return ? was the thought uppermost in the minds of those men who feared nothing !

WHAT A SURPRISE !

For a couple of hours now the little captured 'plane had hovered over the German lines and beyond, where all was now quiet, except for the occasional crack of a sniper's rifle. Every now and again a searchlight would rove the sky, seeking to pick out the 'plane whose engine could be heard whining over the clear air. At last it rested full upon the 'plane throwing it up into relief and half-blinding its young pilot.

But no rain of anti-aircraft shells rent the air—not a single shot was fired. The 'plane was painted a dull grey with the black German cross painted on its under-wings ! Hugh would not have travelled a mile in his own 'plane, that's why he had chosen one of the machines captured in a recent raid. He was flying under false-colours !

The glare of the searchlight helped Hugh to follow the German



Barry crept nearer to the glowing light.

lines and he dropped to a mere hundred feet from the ground in an effort to trace the German hospital he was to visit. The searchlight had now ceased to rove the sky ; the engine had been turned off for some time and apart from the steady whine of the wind through the strut-wires and the slowly revolving prop. all was silent.

It was under cover of that black, grim silence that Hugh Barry 'planed down, felt his wheels bumping over the ground under him and drew the 'plane to rest, just under the cover of the shadows thrown by a clump of trees.

The time must have been about two o'clock in the morning, for

only one light showed in the old mansion that had been converted into the German reserve hospital—that was from the guard's hut.

Hugh's heart was beating rather faster than normal as he waited a while before crawling across the small clearing that had once been the back garden of the French château. His automatic reposed in its holster where it would have to remain—a shot in the night would awake too many echoes. If it came to a fight with a sentry, bare fists would have to be the order of the day.

Silently, cautiously, Barry crept nearer and nearer the glowing light that emerged from a cracked window in the porch of the château. Reaching the side of the place, Hugh pulled himself up and peered through the cracked pane. He screwed up his eyes as he sought to take in the full picture of what was going on in that guard-room. Next moment he uttered an audible cry and almost gave himself away. What he saw within that room had given him the greatest surprise of his young life!

The leader of the guard—there were three sentries, all fast asleep—was his own brother! Roddy Barry, his brother, in German uniform! The shock of the discovery almost took Hugh's breath away. His brother—an enemy!

Crouching by the wall, his heart a-flutter, his limbs trembling Hugh Barry wondered and wondered. What would be his best plan now? Inspiration came to him in a flash. Drawing himself silently to his feet again, he commenced to tap upon the window:

·–· ––– –·· –·· –·–– ·· – ··· ···· ··– ––· ····

The young airman waited for a moment, while he watched his brother's face change. Then he repeated the same message—"RODDY IT'S HUGH." This time he saw his brother's face pale and, looking furtively at the three sleeping sentries, and assuring himself that they would not stir, he crept to the door, drew it silently open and stepped out into the raw night.

"Hugh!"

The name came in a whisper, carrying to where the young pilot crouched. Then he rose to his feet and stepped forward, making not the slightest sound.

"Roddy!"

FALSE FLYING COLOURS

The two brothers clasped hands—they were enemies, rivals in war—but they were brothers, sons of the same parents.

"Roddy, what are you doing out here? What . . ."

"Shhh, remember those sentries," came the hardly audible reply as the two brothers crouched lower in the shadows. "I'm a secret service agent for the good old country in the German army. I've been waiting for you—or at least, an airman to come as my instructions told me. All is ready, don't waste a minute. The officer will be coming his rounds in a minute."

"But, Roddy," queried the younger brother in puzzled tones, "you're not in the German army then? But, what have you been doing since you came home five years ago? Why——"

"Hugh, old boy, let that wait. Come on now, follow me!"

Hugh could have shouted for joy but he forgot family matters then and remembered only that he was in this bleak, dark spot for a purpose—a purpose for his country. And he mustn't fail! The men of the Fifth Squadron never failed—unless they died doing their duty!

Cautiously, his heart almost ceasing to beat for fear that it would be heard, Hugh followed his elder brother, dressed in his field-grey with the little round cap, to the back of the silent château. Then he felt a restraining hand on his arm—his brother's—and Hugh waited.

The pair must have stood like that for quite a minute—it seemed an age—then Hugh felt himself urged forward again this time to an open window.

"Stay here a moment," came the order from Roddy Barry. "I'm going round to the front and will come to this window from the inside. Captain Clare, the secret service agent, lies in a bed just under this window. He knows rescue is at hand—I told him some hours ago. So be ready. And when he is clear of the window—don't waste a minute but get away. And—and—if I don't see you again, Hugh, give my love to the old folks, won't you. Now for it!"

For a moment Hugh felt like restraining his gallant brother who was fighting danger and death every minute of the day—he too, was flying under false colours as a secret service man. But Hugh realised that they must both do their share in this "stunt," as he had previously called it back at headquarters.

It seemed an eternity that he stood crouching in the blackness under that window, then a movement caused him to stir. The window

was opening—slowly—inch by inch. At last it was standing wide open and Hugh waited for the next movement.

It was an age happening, then through the aperture showed a shadowy figure—that of Captain Clare, whom Hugh had been sent to rescue. The young airman reached up and assisted the figure of the bandaged officer through the window and, wrapping his warm pilot's jacket around the white-faced, trembling officer's figure, he helped him across the shadowy expanse of stony grass-land to where the 'plane rested under the trees.

"Cheer up, sir, we'll soon be through this," said Hugh Barry, as he assisted the secret-service officer into the second cockpit of the plane. "Everything's gone all right up till now, and there's no reason why it shouldn't go right until we reach the base."

"Yes, lad, came in the whispered tones of the wounded officer, "but we'd never have got through if it hadn't been for that brave young Britisher in there. I—I wish he'd leave this place and come back with us. He——"

The officer broke off as a sound crossed the black, deathly stillness —a sound of shouting—Germans yelling and raving. Yes, the door of the emergency hospital was opening and—the guard was turning out. Captain Clare had been missed—his escape had been discovered!

Four or five German soldiers were running shouting across the ground fronting the château—and they were coming directly towards the aeroplane. Some one had spotted the 'plane hidden in the trees—something, some one had revealed their presence!

With his heart sinking within him, but still determined to carry out all he had promised his Squadron-commander a few hours previously, Hugh climbed into his cockpit. In a matter of moments the 'plane's propeller was whirring, the engine was being revved, its roar reverberating through the trees like the roll of dozens of drums. Next instant the machine moved—but only a few yards.

"Don't move another inch, Englishman, or I'll fill you with bullets!"

The clear-cut order rang out over the night, shouted above the roar of the engine. Next moment the five Germans had reached the side of the 'plane and their leader had a revolver levelled towards Hugh, sitting white-faced in his cockpit.

At the last minute he was to be baffled—beaten with the goal in

Instead of stopping the plane Roddy scrambled aboard.

view. For a moment he decided to rush it, then he realised the foolishness of that action. While he had life there was hope!

Then the leader of the Germans stepped out of the shadows, revolver still levelled, and clambered up the side of the 'plane.

"Hugh—I'm going to take a chance"—it was Roddy Barry's voice and Hugh's heart gave a happy little flutter as he realised that there was a great deal of hope left!

"Hugh," whispered Roddy, "I'm going to stand back for a moment. Then it's up to you to roar off. I'll make a rush at you in an effort to stop you—and I'll be able to clamber aboard before any of those Huns realise how they've been duped."

There was no time for Hugh to reply for Roddy jumped back to the ground and stepped from the immediate vicinity of the 'plane.

" Now then, there," he cried in his best official voice, " out of that machine—quick ! "

For answer there came a roar from the aeroplane's engine. Next moment it had moved off across the darkened ground.

Crack ! Bang—g—g—g !

Two shots rang out above the whine of the engine—but Roddy had purposely fired high, although the other German guard didn't realise this. The shots had no effect on the 'plane and Roddy leaped forward with a snarling oath in German, in an effort to make his German colleagues think that he was determined to stop the British airman reaching his own lines again.

But what a surprise they received. Instead of stopping the small, black 'plane, the machine gained speed as Roddy clutched at the side and scrambled aboard—and in a matter of seconds it seemed, the 'plane and its occupants were lost to view, lost in the black night. And it was heading towards the British lines !

Hugh Barry had not taken his machine with its precious burden more than a mile or two when the blackness of the night sky was split by the beams of nearly a dozen searchlights, glaring arcs from north, south, east and west.

Below in the darkness frenzied German anti-aircraft squads were frantically working in an endeavour to pick out the little British 'plane. A few minutes after Hugh had left the grounds of the château the telephone wires had hummed from the German headquarters warning all anti-aircraft bases that a very important prisoner had been mysteriously rescued by a young airman. " Stop him at all costs " rang the order.

That is why the sky was bristling with powerful searchlights, roaming about, flashing here and there in an endeavour to catch a glimpse of the 'plane, so that the gunners could open fire.

At first sight of the white beams reaching up into the black sky, Hugh's heart was once again heavy. Even Roddy and the gallant captain, brave as they were, realised that few 'planes have ever been able to frustrate anti-aircraft searchlight and gun squads. And every minute the three occupants of that little 'plane, heading with all speed towards the British base its engine humming a merry tune, expected the beams to rest upon their 'plane and shells to be whining around them.

Hugh climbed higher and higher, but still the beams followed the

machine. One lighted upon the 'plane, lost it again only to return. Hugh swung the control-stick over and the little machine, like some tiny bird up there among the blackness, was again lost to the searchlights.

Then came a concentrated effort—all the beams concentrated upon one spot and moved slowly across the sky. This time Hugh realised that it would be almost impossible to escape their vigilant rays. He was right, the concentrated beams in one terrific glare of electric light, rested upon the fuselage and wings of the little 'plane.

" It's all up," thought Hugh,—" all up this time."

Next moment a gun far below them barked and a shell whined up into the blackness, exploding with a fierce report. The burst of the shell caused the little machine to rock like a cork on a rough sea.

In another few moments the air was a welter of exploding shells, some bursting below them, others above, some to the left, others to the right. All around them was now a cataclysm of shrieking, whining shells, the burst of each shell shaking the little machine until it rocked viciously. It was all Hugh could do to keep her on an even keel and heading straight ahead—for home!

Suddenly the 'plane gave an even greater rock, swayed and commenced to dip—the control-stick had been jerked out of Hugh's hand! A shell had fallen just short of the undercarriage of the machine and part of the fuselage was carried away by the resultant burst.

But that was nothing to what followed. Another shell ripped clean through the right wing, while another carried away part of the rudder.

Hugh's young heart fluttered within him. After all he had attempted it seemed that he was to fail at last. It would be almost useless to try to keep the 'plane going now for it was fast losing speed and stability had been impaired by the shells ripping away parts of the wing and rudder.

It was impossible to speak to Roddy behind him, but a hand came across every now and again, patting Hugh on the head. Roddy was safe at least and he knew that Captain Clare was in good hands, for the two secret-service men were in the same cockpit.

Then from heaviness, Hugh's spirits soared again. The shells were now falling very far short; the beams of the searchlight were now stretched to such an extent that they had lost their brilliance. In a few more minutes Hugh could have shouted aloud for joy—the 'plane was now completely out of range of guns and searchlights, although

the beams were still roaming the sky. But the guns were gradually silenced—the gunners must have realised that the night-bird had beaten them!

But Hugh had little time for rejoicing at his position. Steering the crippled 'plane was now a real man's job for the rudder was hardly working at all, but so long as the engine kept going, Hugh was hopeful of reaching his headquarters.

But that engine didn't keep going—a few minutes after the 'plane left the range of guns and searchlights, the engine began missing, became worse and worse until it stopped altogether.

A piece of shrapnel had struck the spare petrol-tank under the pilot's cockpit—and the "juice" had all gone—wasted!

But Hugh wasn't beaten—no, not by a long way. "While there is life there's hope," he kept saying to himself. And although his engine had stopped, he contrived to keep the machine flying as flat out as he could, so that the descent would be as slow as possible.

Dawn was breaking the eastern sky, showing blood-red on the distant horizon as Hugh realised that the machine was now reaching a very dangerous ground level. A matter of minutes would see the 'plane stationary on the ground—if they ever reached it!

Hugh was just beginning to despair of ever seeing his base again when he could have shouted for joy—there, not five hundred yards to the right were the hangars and huts of the Fifth Squadron, showing shadowy and gaunt against the grey sky.

A little more patience, a little more persuasion and the machine would be in safety. But lower and lower it fell until, realising that it would be futile to try to gain any more ground, Hugh flattened out and made to land.

Suddenly he struck the ground with a fierce bang. Earth and stones flung into the air as the 'plane bumped, lurched and crumpled on its side.

Hugh Barry was the first to scramble from the wrecked machine and in a moment he realised what had caused the crash—a shell had completely blown away the undercarriage and he had landed without the aid of wheels. Next moment he was blessing the fact that the engine had "conked out." If he had been travelling at any speed the 'plane must have turned over and—well, it might have meant the death of himself, Roddy and Captain Clare.

He had not been ruminating more than a minute and commenced to assist Roddy and the gallant wounded officer from the wrecked 'plane, when a shout rang across the shell-swept field in which they had landed. It was Captain Jones, Squadron-commander of the Fifth Squadron and others of the pilots who had seen the little black 'plane land and crash.

" Hugh—you've done it ! " cried the officer running up. And in a moment the young pilot was surrounded by his cheering, laughing mates, who wrung his hand and slapped his back.

" Here, cut it out, you chaps," said Hugh, shaking them off. " Two of you help Captain Clare over to the quarters' He's all in."

The young airmen fell back as the secret-service captain was led away, almost collapsing. Then Captain Jones led Hugh off.

" Hugh, lad, I'm proud of you and you bet I'll report your action to general headquarters. You've done a brave thing, Barry."

The lad smiled wanly. The reaction was setting in and he felt fit to drop.

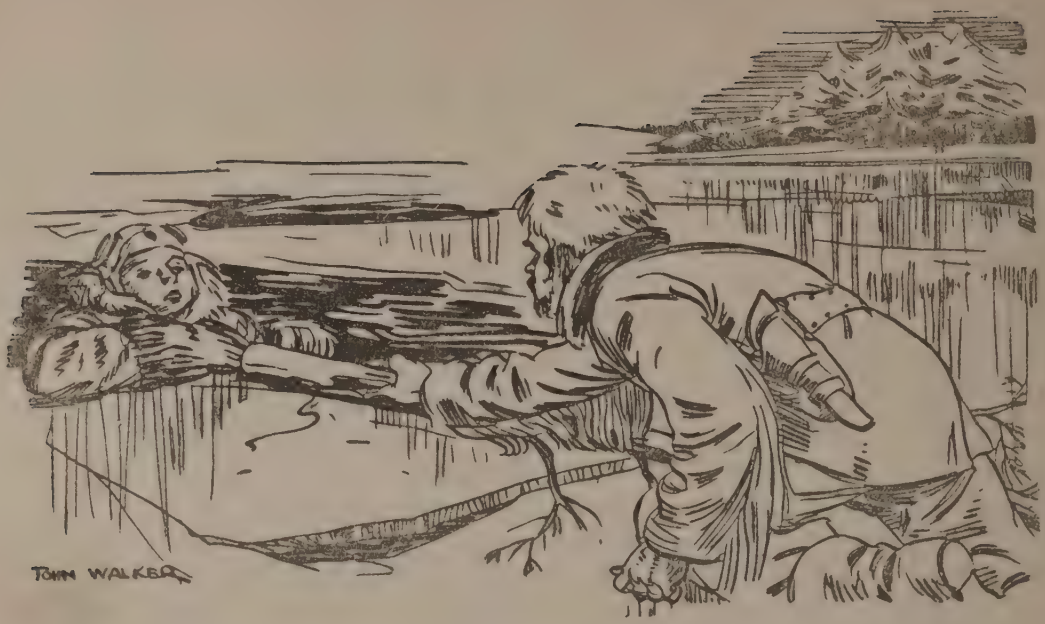
" Thanks, sir," he replied in almost a whisper. " But—but there's the chap who made the rescue possible."

The commander's eyes followed Hugh's pointing finger to where Roddy Barry was helping the gallant secret-service officer to the little cluster of huts.

" He helped you ? " queried the commander. " But—but, yes, he's wearing German uniform ! "

" I know—but he's my brother. Lieutenant Rodney Barry of the British Secret Service ! "

A moment later Roddy thought his hand was going to be wrung clean off his arm, while Hugh thought his colleagues would never stop cheering as they breakfasted together with the roar of the guns as their orchestra !



Watchers of the Forest

By M. STANFORD

"HULLO, Fort Duncan! Hullo, hullo!"

Jeff MacLaine repeated the call several times before receiving an answer from the headquarters of that section of the Canadian Forest Patrol to which he belonged. Then a thin voice sounded in his earphones.

"Hullo! Fort Duncan speaking."

"Hullo!" replied Jeff. "This is MacLaine, flying about twenty miles north of Yellow River. In case things go wrong, I want to report that my engine is running cranky, and I seem due for a forced landing. At present there is no suitable clearing in sight, so I am heading for a small lake lying a little to the west, and shall try to land on the ice. Have you got that, Fort Duncan?"

"Report noted, that Ranger MacLaine is in difficulties twenty miles north of Yellow River," came the answer in expressionless official tones. Then the operator's voice changed. "I wish you luck, Jeff! If we don't hear from you within three hours, I'll see that a relief plane is sent out on the hustle!"

"Thanks," said Jeff, then switched off his wireless and wound up the weighted aerial wire that dangled from the 'plane.

His engine was missing badly, and he attributed the trouble to a choke in the oil feed. The speed gauge told him that his machine was slowing steadily, and it could only be a matter of minutes before his propeller revolutions dropped to the minimum for flying safety.

Jeff looked anxiously about him, to see nothing but an unbroken expanse of tree-tops; mostly larch and spruce, that thrust up their pointed summits like the spears of a vast army. Even by taking to his parachute it would be a perilous matter trying to get to earth between them.

The coat of snow that lay over all—the first real fall of winter—made it difficult to locate the small lake that he sought, for it blurred all his landmarks.

He opened the throttle to its widest, but could not combat the loss of speed. Gradually, but perceptibly, the forest appeared to be rising to meet him.

Even if he attained the lake, Jeff realised that there would be risk in landing upon it. As yet the ice could be of no great thickness, and although his 'plane was fitted with skis for alighting, the surface of the water might not be frozen sufficiently to bear the machine's weight.

At last Jeff saw the break in the trees that indicated the position of the lake, and he turned the plane a degree or two into the correct direction. The gap was at least a couple of miles away, and his engine was firing more erratically than ever.

A rise in the ground sent the trees up an extra twenty or thirty feet, and Jeff feared that he would never clear the ridge of timber. He lifted the elevator plane, and the machine rose sluggishly, just enough to skim the obstacle. Jeff felt one of the skis scrape a bough in passing.

Then the lake was in front small, smooth, oval in a frame of forest.

Jeff unloosed his safety belt. At the fringe of the trees the 'plane wobbled beneath him, so low had its speed fallen. He had to bank in order to get the longest run possible on the ice, and even then the distance was all too short.

He swooped steeply, then flattened out for the landing. The skis touched and screamed as the 'plane glided across the ice, which seemed to be bearing. Then one of the runners struck an unevenness—probably a floating branch that had become embedded in the ice.

There was a heavy jolt, and the 'plane was slewed violently out off its course and toppled forward. Jeff was thrown out of the cockpit amid the reports of breaking ice. Something struck him a glancing blow that numbed his right arm—he supposed it was the revolving blade of the propeller. Next instant, he was going down, down, down into the water so cold that it bit his exposed face and hands like a burn.

In his heavy flying kit, it seemed impossible that he would ever fight his way back to the surface, and as he rose he was possessed by the hideous dread that he would come up under the ice.

A great gasp of thankfulness burst from him when suddenly he found his face in the air, and he turned on his back to take in a dozen deep breaths. But in that killingly cold water he dare not waste a minute before seeking to escape, and he looked about him for the best means of reaching land.

The 'plane had vanished. It should have retained a certain buoyancy for a time, but Jeff guessed that its dive had lodged it under the ice.

The nearest bank of the lake was fifty feet away, and Jeff struck out through the slabs of broken ice that intervened. He was badly handicapped by his damaged arm being practically useless.

Coming to the edge of the hole made by the crash, he endeavoured to climb on to the ice, only to have it break beneath his weight and send him down several feet again. Once more he tried, and again it broke.

By now the water was penetrating his clothing, making it more and more difficult for him to keep afloat, while the chill was fast robbing him of strength.

He got his hand on the slippery rim again, and essayed to brace his muscles for another effort, although hauntingly sure that he would only succeed in dislodging another floe.

As he rested, it seemed to him that he heard a voice calling, but the close-fitting flaps of his helmet and the water in his ears made him almost deaf and he thought he must have imagined the sound. Again it came, however, and hope vanquished unbelief. He had no idea whence the voice had come, and peered around in search of the speaker.

He saw a figure running along the shore of the lake, making for a point opposite to him. It was a short, stocky man, dressed in the garb of a typical backwoods trapper.

T.A.

Up mounted the plane with the tall trees closing in fast on either side.

The newcomer waved a hand to Jeff encouragingly, then cupped his hands to his mouth and shouted.

"Hold on, pardner! I'll get you out in a couple o' shakes!"

"Right!" cried Jeff hoarsely. "Hurry, for I'm nearly all in!"

The trapper vanished among the trees, but reappeared in a few seconds, dragging with him the long, slender trunk of an uprooted sapling.

Pushing this before him on to the ice, the rescuer lay down and began to worm his way across the badly-cracked surface. It was not long before he was able to push the end of the sapling within Jeff's reach.

"Get a hold on that," he commanded, "and try if you can climb out by it. Gently does it, pard!"

By resting his weight on the pole, Jeff succeeded in getting out of the water. After which his saviour bade him lie still while he towed him clear of the dangerous area by means of the sapling.

"Just as well I saw your machine dropping, and hustled along to see how you were faring," chuckled the little elderly man as he assisted Jeff to his feet on the bank.

"If you hadn't done so, I'd have been under for keeps by now," answered Jeff, solemnly. "I'm mighty grateful——"

"Shucks, boy, you've no time to be spoutin' thanks now!" the trapper interrupted. "We've got to get you warm and out o' them clothes quick. My shack lies about three miles from here, and you've got to run every blamed step o' the way there, else freeze! Get goin', pard!"

First Jeff persuaded the old man to help him out of his sodden flying kit, which would have made running impossible. Then he set off at the trapper's side, and his companion kept him at a steady trot until his whole body began to glow with restored warmth. At length they came to a clearing, at one end of which stood a little shack.

"This is where I live, pard," panted the trapper. "Just me and Blazer—that's my dawg."

Steve Huston, as the old man was named, first had to introduce Jeff to his dog, a mixture of collie and malamuit, that was evidently devoted to its master. Then Steve made his guest strip and get between blankets, while he prepared a pot of steaming coffee.

As a natural outcome of his adventure, Jeff began to feel drowsy,

Jeff found Steve in a chair bound hand and foot.

but he remembered that a relief 'plane would be setting out to find him.

" Never you worry 'bout that, pard," said Steve when Jeff mentioned this to him. " I don't reckon one o' them machines could land in this clearing, but I'll make a smoke signal, Injun fashion, and call your mates in this direction. Then I'll signal 'em that I've got you here, all safe and snug. Soon as you're fit, I'll take the trail with you for Smith's Fork, where you can be picked up by your people. Now start snorin', pardner ! "

. . . . . .

Once more Jeff was flying on the north side of Yellow River, and not many miles distant from the scene of his disastrous forced landing. But this time the season was summer, at the end of two months of hot, dry weather.

The young pilot was keeping an unusually keen look-out, for the state of the forests was ripe for devastating fires to rage. His eyes kept roving over the ocean of treetops that tossed in the stiff breeze. At

the least sign of a curl of smoke, he must swing that way to investigate.

Since Steve Huston saved his life at the beginning of winter, Jeff had made it a point of passing over the old trapper's hut when his patrol took him that way, and if Steve was at home he would always be outside to wave his hand as the 'plane flew by. Generally Jeff would drop a packet of tobacco and papers into the clearing—welcome gifts to the hunter in his loneliness.

Jeff had a bundle with him for his friend on this occasion, and it was as he turned his machine towards the shack that he first glimpsed an ominous blurr above the trees.

Unquestionably there was a fire blazing, and one of some dimensions. As he opened his throttle to race to the spot, Jeff realised with a start that the fire must be in the vicinity of Huston's dwelling.

The smoke rolled upwards in increasing volume as he drew closer, and soon he could see the tongues of flame lifting high above the trees.

Eagerly Jeff called up Fort Duncan on the wireless, and made his first report. He knew that within a few minutes the new aerial fire engine stationed at the depôt would take off, bringing its crew of trained fire-fighters to wrestle with the conflagration, by means of the most up-to-date chemical appliances.

Meanwhile, Jeff pressed on in order to get a close view of the damage.

The nearer he came, the more certain was he that Steve Huston's shack must be in grave danger of destruction. The outbreak had started at a point about a mile distant from the little clearing, towards which the wind was rapidly sweeping the widening line of fire.

Jeff put through another report describing the extent of the blaze, then anxiety on Steve's behalf sent him fleeting onwards. He was flying high, but the heat of the fire came up to him like a douche of hot water, while the reek of smoke gripped at his throat.

Then he was looking down into the long, narrow clearing, and leant over to see if Steve was in sight. Nothing moved in the neighbourhood of the shack, but he circled back for a second glance.

This time, he noticed Steve's dog, Blazer, lying on the ground in front of the hut—lying so still that Jeff was seized by a sudden chill of apprehension. It was so unlike Blazer to refrain from leaping about

and barking when the 'plane flew over, while by now the animal should be showing alarm at the oncoming fire.

Something assured Jeff that all was not well with Steve Huston, and the debt that he owed to the old man called upon him to inquire into the mystery.

Jeff circled round again for another look at the clearing. On previous visits he had decided that landing there would be possible, but taking-off again would be a problem of some difficulty. The clearing was long and narrow, with rank grass running up to within thirty yards of the hut, which would impede the wheels when trying to get the necessary speed for rising.

However, Jeff did not pause to consider long his chances of getting up again. He turned into the wind and dipped, alighting well up the open space near the edge of the grass, and taxi-ing almost to the door of the shack.

Leaving his engine ticking over, he climbed from the cockpit into an atmosphere that was laden with smoke.

A swift look at Blazer convinced him that his suspicions had been justified, for the poor brute was lying dead with a gaping knife-wound in his side.

A husky voice came from within the hut, and in a second Jeff was through the doorway, to find Steve sitting in a chair to which he was bound hand and foot.

"What's the meaning of all this, Steve?" asked Jeff, angrily, as he cut the old trapper loose.

"It was a couple o' half-breeds done it, pard," answered Steve. "They've robbed me o' my furs, then, to make sure I'd never tell the tale, they tied me up and set fire to the forest, so that it would be thought I was burned accidental."

So tightly had he been tied that he could not stand at first, but while Jeff rubbed the circulation back into his limbs he jerkily told his story.

The night preceding, two half-breeds had appeared, and had asked Steve for food and shelter, which the hospitable code of the West obliged the trapper to give them. So far, Steve had not disposed of the furs he had taken during the winter, for prices had run so low in the spring that the old man had decided to hold on and await better terms. Among his catch had been some pelts of exceptional value, and these must have aroused the greed of his guests.

When morning came, one of the visitors had treacherously stunned the trapper from behind, and the other must have stabbed the faithful Blazer when he sprang to his master's aid. Then Steve had been bound to his chair, and after searching the cabin and picking out the best furs, the robbers had departed about an hour ago, declaring their intention of starting a fire to consume the hut and its owner.

By now the roar of the flames was near enough to drown the sound of Jeff's engine.

"Come along, old timer, we shall have to quit," said Jeff, helping the old man to his feet. "Once we are aloft, I can send Fort Duncan a description of the fellows who robbed you, and the Mounties will spread a net they are not likely to escape. They will have a nice list of crimes to answer to—including attempted murder and malicious fire-making in government forests!"

With Steve's help he swung the 'plane round so that it faced down the clearing, then he helped the old man into the observer's seat and adjusted his safety belt. Not till then did he prepare for the take-off.

He looked at the tangle of grass, more than waist deep, which must slow the wheels, and which might even check the revolutions of the propeller as the tail of the plane rose to a level with its nose.

That grass must be cleared for some forty or fifty yards, and it must be cleared within five minutes or so, or they would be engulfed by the on-rushing fire behind them. And fire was the only ally that Jeff could think of to accomplish the task before him. That grass was so dry that it would burn like cotton wool, and within the allotted time it should be practically reduced to embers.

Praying that his calculations might prove right, Jeff produced matches and hastily ignited the grass in a dozen places. Rivulets of flame at once began to run before the wind, and as he entered his cockpit Jeff saw a wave of fire creeping down the clearing, until his vision was obscured by a great cloud of smoke that swept upon them from behind.

Over his shoulder, he saw the nearer tree trunks silhouetted against the red glare, while flames were already licking between the branches. The heat and the smoke became overpowering, and fragments of burning twigs drifted by on the breeze.

In front, Jeff saw that the fire was receding, leaving behind a grey ash that was shot by tiny tongues of red. But the blaze was spreading to

the trees that walled the clearing, and he must not delay long or he would have a fiery barrier to rise above at the far end.

Jeff pushed the throttle to its widest, then, as the 'plane commenced to move, he raised his elevators as far as he dared.

The advance of the 'plane seemed terribly slow. The grey ash whirled behind in a blinding cloud as the blast of the propeller caught it, but before him Jeff saw the angry streak of fire that they were overtaking. If they had not risen before that was reached, the fabric of the 'plane would undoubtedly catch, yet Jeff dared not check now.

Then, with a gasp of joy, he found that they were off the ground. Up mounted the 'plane, with the tall trees closing in fast on either side, but with little more than a foot to spare Jeff won free.

As soon as he was high enough he let down the aerial of his wireless, and transmitted to Fort Duncan the message that was to bring the pair of fur-thieves into the hands of the Royal Canadian Mounted Police, and to restore to Steve Huston the property that had been stolen from him.

Tribal Justice

By R. S LYONS

"IF only we get along on the rest of the journey as we have this much of it," remarked Don Potter, watching his brother making a few minor adjustments to the small 'plane, "we should reach Australia in record time."

Gordon Potter, tall and bronzed, nodded.

"Yes," he said; "but I wish you hadn't said that out loud, Don. Think it, if you like, but don't say it!"

He smiled.

"I'm not superstitious, but when one starts 'if-ing' on a stunt like this, one's liable to come a cropper."

"Good old misery!" exclaimed Don. "Always seeing trouble when none's about."

Don and Gordon Potter were first-class air pilots, and had been commissioned to make a six-stop flight to Australia, breaking any records they could. So far the journey had been uneventful. Things had gone better than either had anticipated. But, as Gordon might have added, they were only at the very beginning of their flight. They hadn't even crossed the Persian Desert yet.

The machine took to the air as smartly as ever when the journey was resumed half an hour later; and then, for no apparent reason, the engine "konked" when they were over the desert, with miles of sand behind them, and a farther thirty miles of it to the next stopping-place.

"Broken petrol feed," muttered Gordon, when the 'plane had been got down safely. "And we haven't any wireless to let them know ahead. Just when things were going so well, too."

"It's all my fault," bemoaned Don. "Didn't I talk about our good luck?"

Gordon said nothing to that. He was busy with the 'plane—so busy five minutes later, in fact, that he was almost startled when Don cried out:

"Hallo! Thank goodness there's some one about. Here's a crowd of fellows who'll get the news back or forward for us."

Gordon's eyes glimpsed through the motionless propeller a number of figures riding camels—figures in white; armed figures.

The two watched and waited.

A cloud of desert sand came with them as they hastened up.

The leader, a big, dark-visaged Arab, got to the ground. He turned to the one who appeared to be second in command.

"They are English," he said; "of the race I have learned to hate intensely. Ever since they prevented my father from taking the lands of Ayam Dalkash who would have had us make peace with them." His white teeth gleamed between his lips, as he surveyed Don and Gordon.

The two Englishmen looked at each other. The words, spoken in Arabic, were quite unintelligible.

The big Arab swaggered forward and looked Gordon over. His eyes narrowed.

"Englishman," he said, in almost perfect English, "you are in my land, and therefore are my prisoners." He walked still nearer until his face was but a few inches from Gordon's; Gordon did not flinch. "Prisoners are undesirable. You, like the rest, must die!"

Don's heart beat fast.

"Look here," he said passionately, "we're flying to Australia, and you can't hold us up like this."

The Arab twisted about.

"A child speaks!" he laughed, pointing derisively at Don. He snapped his fingers, his face hardening. "I shall hold you up like this—till, let me see, till sunrise. After which you shall be shot."

The other Arabs raised their guns in the air and gave a queer cry. The Arab, however, who was standing beside the leader, suddenly nudged him, a new light in his eye. They conversed in low whispers.

The chief nodded quickly, and turned to Gordon, looking him up and down again.

"I have a better suggestion!" he said. "First, you will wonder how it is that I come to speak English so well. It is because I received my—er—my civilised ideas in an English university. I learned another thing, too, while in England—to fight; the noble art of boxing. *You* look strong and a worthy opponent. Think you! If you should care

The two watched and waited.

to pit your strength against mine and win, then you both shall live and go free. But if "—and his eyes gleamed "—you lose, then shall you die with the dawn, and your bones will be left to rot!"

Don's eyes met his brother's. He dared not shake his head, for every eye was upon them. He waited for Gordon—Gordon who, not long before leaving England, had been seriously ill.

Gordon was a good boxer, but as Don compared him with this Arab sheik, he realised that he was no match for the other.

Gordon smiled.

"Arab, I will fight you!" he said shortly. "But, will it be a fair fight?"

For an instant Don felt the Arab would rush at Gordon and rend him in two. But he took a deep breath and showed his teeth.

"It will be a fair fight!" he said softly.

He turned to his tribesmen and gave curt orders. They dismounted and formed a rough circle. Then he began to strip.

Gordon and Don walked to the far side of the ring, and in silence Gordon took his jacket and shirt off. It was to be a bare-fist affair, of course; but he thanked his lucky stars that the heat of the day was over.

"It's the only way, Don," he whispered. "He's ripe for mischief, so it's better to humour him."

Don agreed, although he could see only one outcome of such a fight. He looked across at the Arab and could not help but admire him as he stood there, brown as a berry, muscles rippling beneath the skin.

Then the two faced each other.

The Arab straightened up almost at once, however, and held up his hand.

"There will be rounds," he said, "but a round will end when one man is knocked down—as your ancestors of old would fight, eh?"

"Just as you like!" said Gordon.

"And ten seconds only will be allowed during a round if one of us is sent down. If that one does not recover in ten seconds, then the fight shall be awarded to the other. The child there"—he pointed at Don—"can amuse himself by counting each time I knock you down."

Gordon flushed, but said nothing. He put his fists up and waited. Then they were at it.

Gordon felt that his only chance would be to use his science against the other's bull-like rushes; but in this he was mistaken. He was matched by equal skill. There were no mad rushes, yet. It was boxing pure and simple.

A roar welcomed first blood, as the Arab's fist landed with a "crack" on Gordon's lip, splitting it. Gordon merely smiled, feinted as the other rushed at him, and planted his right in the Arab's stomach.

The Arab's face showed that he had been hurt. A scowl spread over it, which deepened as Gordon's left smacked home on his forehead. Then he rushed.

Gordon gave ground before it, taking punishment and giving it. Four minutes later a well-directed punch to his neck put him on the ground.

Don commenced to count. But Gordon was up at the word "Four!"

The Arab had by this time dropped his hands and gone back to his "corner." Gordon sat down on the sand, and waited; while the Arabs laughed and sniggered as they came close and looked at the ugly red patches which stood out on his white flesh.

The second round started, with Gordon waiting for more rushes. They came, one after the other, the Arab determined to wear Gordon down beneath his onslaughts and then administer the *coup de grâce* with a mighty blow.

Gordon held him off, however; held him off repeatedly, and hit him time and again, just short of the vital mark on the jaw. The second round ended when the Arab went down into the sand following a smash between the eyes.

Don counted, but the Arab pushed him aside at "Five!"

Gordon was in no way troubled, so far. His wind was as good as ever, and he noted exultantly that the Arab had bellows to mend. He was panting as he sat in his "corner," and grinding his teeth.

Round 3, and the Arab intent on finishing the fight off. His rush took Gordon round the ring. His fists smashed against the Englishman's body, on his head and mouth and chin.

Gordon retaliated with two well-directed lefts to the jaw, a right to the stomach and another over the heart. It was the last blow which gave the Arab most trouble, as Gordon noted from the twisted expression on his face as the blow landed.

He should have another, then.

Gordon merely bided his time and watched. His opportunity did not come until he had taken such punishment that Don felt fit to scream out or rush between them to stop the fight. He was almost out on his feet more than once, and yet he watched and waited.

In the middle of Round 9 his chance came. The Arab swaggered in as Gordon tottered back, intent upon the final punch. But as he got within range, Gordon's body stiffened. His fist came round, hard and taut, and sank into the other's body. Then followed the other, immediately over the heart—a blow that thudded like a pistol shot and brought an agonised cry from his opponent.

The Arab's eyes became glassy. He stood there, arms at his sides. Gordon was almost too far gone to punch again. His fist landed. It

was little else than a push, yet sufficient to topple the Arab on to the ground. He lay there like a log.

Mechanically Don began counting.

" One—Two—Three——."

Not a suggestion of movement.

" Four—Five—Six——."

The Arab moved slightly, then sighed and became still.

" Seven—Eight—Nine——."

This time he elbowed himself into a sitting position. The glassy stare was still in evidence.

" Out ! "

Gordon had won. Don went to his brother at once.

From the circle of Arabs no word came. This was different from what they had expected. They could not understand it at all.

Then the Arab who was second-in-command, took possession of the field. He beckoned the tribesmen about him and commenced a long harangue.

Gordon and Don pricked up their ears, but the language was totally lost on them. Had they understood they would have made a rush for their machine at once, grabbed their revolvers that lay snugly there, and sold their lives dearly. For Cassim Yalnan, who had long hoped that some day the Sheik—Horan Dal Said—would be humbled, was seizing his opportunity.

" Shall we allow them to go free ? " he was saying. " Shall we allow them to go into the hated England and say how they beat a whole band of tribesmen merely with their fists, for such it is ! No ! They are our prisoners, and they shall die. Sheik Horan Dal Said is weak. Look at him, struggling to rise. He totters. He falls almost." The Arab laughed uproariously. " I cannot fight with my fists as he, but with my gun I am his equal. Follow me ! *He* can never command your respect again ! What say you ? "

There was not a dissenter. One and all were with Cassim. For this band of tribesmen knew no country. They were outlawed by every powerful Sheik in the land, because of their lawlessness. With them it was might against right, and so long as might won——.

" Then we will kill these English ! They shall die at sunrise ? What say you ? "

There was a chorus of approval.

In the middle of Round 9 Gordon's chance came.

Meanwhile Horan Dal Said had got to his feet and had approached. His eyes had narrowed as he heard Cassim Yalnan's words. He saw his authority dispersing into the dust. He saw, in his crafty brain, that he had to agree, or *his* body would be left to rot in the desert.

" Cassim Yalnan, you speak before you think. Listen to me, my men. Did you think for one moment that I meant what I said when I suggested this boxing match ? No ! Never ! None of you can fight. I wanted to test my skill against the Englishman before he died. Admitted, he beat me, but was the margin a big one ? Do *I* ever receive any practice ? You will agree that I was his match."

A great cry heralded this speech, and Cassim Yalnan s face was distorted with chagrin. Just when he was about to take the leadership Horan Dal Said had flung off his challenge and " come back " !

" We will follow you, Sheik Horan Dal Said ! " cried one. " You have always led us well. We will follow. When shall these English dogs die ? "

" When the sun again begins its journey across the heavens."

The Sheik went over to Don and Gordon, who were wondering what on earth the hubbub meant. In their hearts they guessed.

"The game is over. The serious business commences with sunrise, when you shall die."

Gordon got unsteadily to his feet.

"But you promised——."

"Promises are governed by the will, and my will is that you die."

"Then your word isn't worth anything at all?" Gordon flashed at him. "Like all your kind, you're a liar!"

Horan Dal Said shrugged his shoulders and bowed.

"Say your fill, for to-morrow you die!"

Gordon would have said much more, but, clutching suddenly at his heart, he gave a groan and collapsed.

Dal Said looked down at Gordon, and kicked him.

"H'm!" he sneered. "Fright!"

"It is not fright," Don cried. "He's been ill, and this contest——."

"This contest proves that I was the stronger after all," Dal Said interrupted. "See, my followers, the Englishman bites the dust."

And while they sniggered Don stood there, unable to do a thing; unarmed and helpless.

"Away with them. Tend the Englishman who lacks strength," ordered the Sheik; "and bind the other that they may be ready for their death with the rising of the sun."

There were many helpers for such a task, and within a few minutes Don was securely tied and flung into a swiftly erected tent. Beside him lay Gordon, who had not moved since his collapse.

Outside sat three Arabs, talking of the morrow.

. . . . . .

Peace reigned in the Arab encampment. The three outside the tent in which were the captives, slept in turn. Within there was a stealthy movement.

For Don was not half so worried now as he had been earlier in the day. Gordon had outwitted the Arabs very neatly. How he had done so is easily explained.

When he heard Dal Said's words, he saw that their only chance lay in his being in a position to get to the machine. So he had feigned sickness, and in consequence his bonds had been but loosely tied.

"We're going to get to our bus and our revolvers, and if we can't get clear. we're going to sell our lives dearly!" said Gordon.

Don had been overjoyed, of course, when Gordon, motionless so it seemed, had suddenly whispered that he had never felt more fit in his life!

"Come on!" whispered Gordon, when he was convinced it was safe to move. "Out of the tent on the far side."

They crept away from the Arabs seated outside, and stealthily lifted the tent wall. All clear! Then they were in the open and creeping towards their machine which stood there, sentinel-like.

Once, in that breathless crawl, they heard sounds from behind and thought their escape must have been noticed. But it was merely a word or two passing between some of the tribesmen before they fell into a deeper and sounder sleep.

They reached the aeroplane and, working past it, clambered in on the off-side.

Their first thought was for their revolvers. They found them just as they had left them, and laid them ready for use.

"Here you are, Don," whispered Gordon, passing his brother a handful of bullets. "If it comes to a scrap, every shot must tell."

The night wore on. Gordon found that there was a lot more wrong besides the petrol feed pipe, but by working hard the whole time, he gradually had the repairs under way.

All the while Don, a revolver held ready, watched the encampment for signs of movement.

Then they were ready.

Gordon smiled as he took his place in the machine.

"They'll get the shock of their lives——."

"Get her away, for heaven's sake!" cried Don, breaking into his words. "They've spotted that we're gone!"

He gave the propellor a twist. Fortunately, the engine came to life immediately. He rushed back, clambered aboard, and, as three Arabs came streaking across the intervening distance, turned his revolver on them.

"Crack!"

The machine, however, was on the move, and his bullet passed harmlessly over them.

Several puffs from the encampment rifles, and bullets whizzed about them.

The machine was taking the air now, with an Arab making a last despairing grasp at the rudder.

The " tail " bumped him off and set him sprawling. The machine was above the camp.

And then, out of the distant sky, which was gradually lightening with the new day, came three aeroplanes—bearing down with all speed on the camp.

They wheeled as they reached Gordon's machine, but one of them passed and went on, to just above the camp. Don, watching, saw something drop from that machine.

Was it a parachute? No! The burst of flame, and the " kick " of desert sand told him that it was a bomb. He saw specks of humanity scattering. The Arabs knew what to expect if they stayed in that locality. The bomb was to frighten them—to show them what they deserved to get!

. . . . . .

A short while later Gordon brought his machine to rest at Ramdon, at the other side of the desert, where they had arranged to take on board more fuel. And there he learned how it was that a rescue party had gone out to find them.

They were expected several hours earlier, and wireless messages from the last station passed made it quite clear that they were in the desert—maybe crashed. It was known also that Sheik Horan Dal Said was looking for trouble!

They had been discovered just in time—although as Don said when thanking their rescuers: " We managed them by ourselves very nicely, thanks! "

In his heart of hearts, however, he told himself that not for worlds would he care to undergo such an experience again.

On the remainder of their flight to Australia, which they reached without further mishap, he said not one single word about their good fortune in escaping trouble. Perhaps he was afraid that superstition was a real thing; that the fates might again bring about their downfall.

With a frightful shriek the fanatical native let go.

The PESHAWAR-DESPATCH

by KEITH ORME

IT was a hot, misty morning. In an hour's time the Indian sun would dispel the mist, but as Harry Elford strode towards the hangars he could scarcely see ten yards in front of him. He patted the pocket containing the despatch for Peshawar, and set his jaw grimly. Colonel Wells, who had handed the all-important parchment to him five minutes before, had stressed the fact that it must be in Commander Kingston's hands before nightfall, and Harry meant to carry out that command or die in the attempt.

He was hurrying past the first of the great hangars when something whistled close by his ear.

" Chuckk ! "

Harry ducked like lightning, and then, glancing up, saw a long throwing-knife quivering in a wooden beam. He leaped forward instinctively, and as he moved, another knife whanged into the woodwork, perilously close to his neck.

Whistling grimly through his teeth, Harry drew his revolver and looked round into the shifting mist for the humourist with the knives. He caught a fleeting glimpse of a shadowy form, and fired three times, rapidly. Even as he pulled the trigger, a third knife drew blood from the lobe of his ear, and buried its point an inch in the woodwork.

THE PESHAWAR DESPATCH

There is nothing quite so unnerving as fighting an invisible enemy, and Harry Elford did a wise thing when he took to his heels and sprinted as hard as he could away from the place. Each one of those razor-edged, needle-pointed knives had been intended for his throat, and the probability was that only the mist had spoilt the thrower's deadly aim.

Harry's shots attracted a couple of sentries, and after rapidly telling them of the daring spy's attack on him, he left them to hunt for the man, and ran the rest of the distance to his 'plane's hangar, where he wasted no time in getting into his flying-kit.

His 'plane, a Blackburn two-seater, had been tuned up and filled with " juice " for the long hop, six hundred and fifty miles from Bareilly to Peshawar, and was already out on the landing ground, invisible through the mist. Harry did not wait to see if his attacker had been caught, for not only was it important that he should start as soon as he could in order to have as great a margin of time as possible in case of emergency, but he was also anxious to get into the sky, where the air would not be bristling with knives !

Harry felt that six hundred and fifty miles in the air would be far safer than a dozen yards on land !

Before leaving the hangar, something prompted the young aviator to transfer the despatch from his breast pocket to a secret pocket in his flying outfit, and before the day was over he was to thank his lucky stars for that impulse.

Two mechanics went out to the landing ground with Harry, for although he could " swing the prop " and hop into the cockpit easily enough himself, it was forbidden by the law of the Air Force except in an emergency.

Harry was fastening the safety-strap when Parkes, one of the mechanics, uttered an exclamation of surprise, and reaching up, fastened the tarpaulin cover of the rear nacelle.

" Could have sworn I'd already done that ! " he muttered.

" Sure you haven't forgotten the tool-kit, or the juice ? " laughing asked Harry, as he finished buckling the strap, but if the mechanic replied, the youngster did not hear him, for he was at the levers, and with a series of ear-shattering roars the motor revved up, the little 'plane taxied forward, gained flying speed, and disappeared into the mist.

Harry thought the Blackburn lifted rather sluggishly, but put it down to the extra petrol she was carrying for the long trip, and thought no more about it. Indeed, once he had gained altitude, flying above the mist, in

glorious sunshine, she behaved beautifully, and was soon flinging the miles behind at the rate of two a minute.

After flying about three hours, and covering well over half the journey, Harry had such a shock that he nearly stalled the 'plane. His mind had been dwelling on his escape from the three knives which had been thrown at him on his way to the hangar, and he was just congratulating himself on being safely out of the way of any further attack, when the cold blade of a dagger touched his cheek!

Jerking his head aside with a startled exclamation, the young airman glanced round and saw, behind the skinny, brown hand holding the dagger, the most diabolically evil face imaginable. Its possessor was in the rear cockpit, and the tarpaulin cover which Parkes had refastened was flapping madly in the wind.

In a flash Harry realised that this was the spy who had thrown the knives. Not having succeeded in getting the despatch from him at the first attempt, he had—possibly to escape the searching sentries—hidden in the observer's seat of Harry's 'bus.

The youngster returned to the controls, but the prick of cold steel in his cheek made him turn again, and he saw the wild-eyed native's lips moving. He was speaking, evidently, but his words were naturally drowned by the shattering roar of the engine, and the shrieking of the wind and the propeller. Dick shook his head, and turned back to the controls. His hand sought his revolver, but he gritted his teeth with chagrin. The weapon was in the pocket of his tunic, under his flying-suit and safety belt, where he could not possible get at it!

It occurred to the young despatch-bearer to land and tackle his aggressor on terra firma, but a couple of glances told him that was out of the question, for the 'plane was flying over hilly country, and there was not a square yard of level ground below.

Just then he heard a screaming voice in his ear. The Indian had drawn himself half out of the cockpit, and was leaning daringly over the narrow space between it and Harry.

This time the youngster heard what the native said, and the words were emphasised by the point of the wicked, slender poniard.

"Turn to the north!" screamed the mad voice. "Turn, infidel, turn, or I stab thee and we die together! Thy despatch shall not reach Peshawar."

Harry knew that the native meant every mad word, and obeyed the command instantly, more to give himself time to think than any other

reason. The native screamed out instructions in quite good English. The 'plane was now heading due north towards the Siwalik Hills. The young airman racked his brains for a ruse whereby he could turn the tables on the spy behind, but after a short time he had to admit to himself that his position was pretty hopeless.

After an hour's flying on the altered course, Harry found himself over a large native town high up in the mountains. There was a broad stretch of ground large enough to land a 'plane, and once again the native screamed into the young pilot's ear.

" Land here ! " came the order. " Land and deliver up the despatch, and you will live. Refuse, and . . ."

The knife pricked the skin of his neck, and at that very moment Harry had an inspiration.

Crouching down as far as he could away from the Indian's knife, he opened the throttle wide and pointed the nose of the machine up at an angle that fairly invited a stall. He gauged it well, however, and she climbed steeply, the motor shrieking like a demon.

The native in the rear cockpit went properly mad. Shrieking frenziedly, he struck out with the dagger, but Harry was just out of reach. Still the sturdy little 'bus climbed. Five thousand feet was reached, and the madman was climbing out of his cockpit in order to get at the pilot.

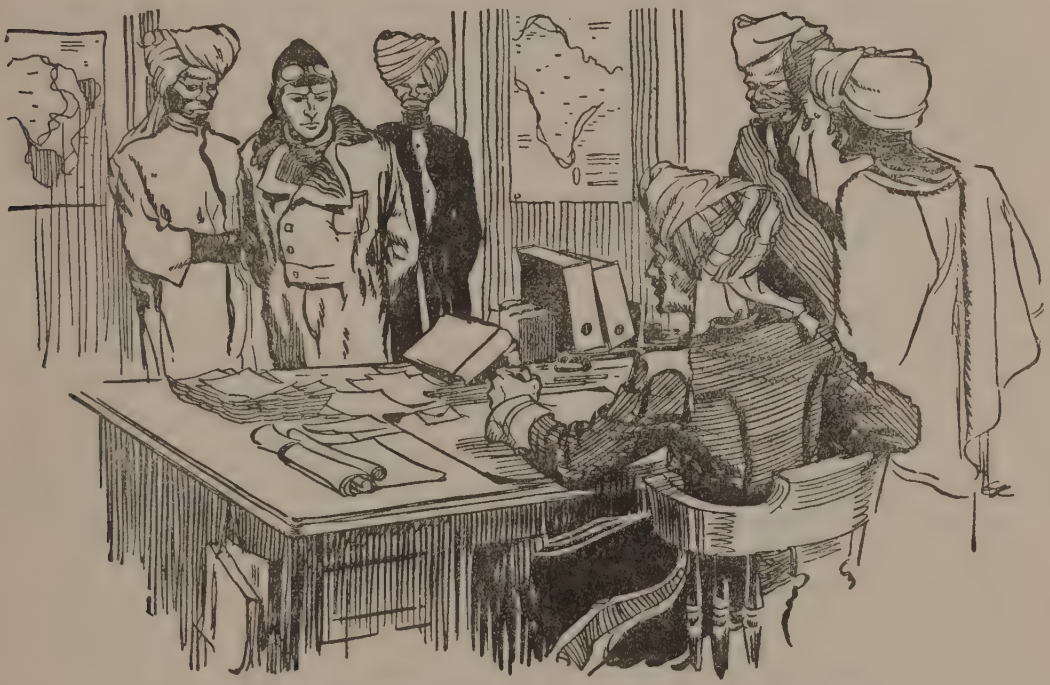
This was just as Harry planned ! He knew that the native was thinly-clad, and he wanted to get so high that he would be numbed by the intense cold.

Six thousand feet. Behind, through the corner of his eye, Harry saw an awful face, with a knife between the grinning, yellow teeth. The native was close enough to strike, but had been using both hands in climbing out of his cockpit.

It was then that the young pilot played his trump card. Pointing the machine's nose down, he dived at two hundred miles an hour. The native hung on tenaciously, and raised the dagger to plunge it deep into the broad, crouching back in front. Harry brought the 'plane over in a perfect loop. Up, up, up and over went the machine, and the native yelled with terror as he felt himself falling backwards. He let go of the dagger and clutched wildly on to the fuselage to save himself. Harry saw that the loop in itself was not sufficient to shake off the spy, and he did a desperate thing. When the 'plane was right at the top of the loop, on her back, he stood up, or, rather, hung head-first down, and stretching back hammered the Indian

mercilessly with clenched fists. That was sufficient. With a frightful shriek the fanatical native let go of the fuselage and fell, twisting grotesquely, towards the crowd of hillmen which had gathered nearly six thousand feet below.

But Harry had neglected the controls just a little too long, and with a sickening side-slip the machine commenced a deadly tail-spin earthward. The youngster's safety belt held good, otherwise he would have followed



The chieftain rapped out instructions to two of his men.

his late passenger to an awful death. Struggling to the controls, he opened out the coughing engine again, and after a few moments' skilful juggling with the joystick succeeded in flattening out, after falling well over a thousand feet.

" Phew ! " he gasped. " That was a near shave ! Lucky I had altitude. Got rid of old monkey-face, anyhow ! "

He glanced back at the native town, which he was fast leaving behind, and saw a black-and-white seething patch which he knew was composed of hillmen, in their picturesque native dress, gathered round a something

that had fallen a mile. Harry dismissed the thought hurriedly from his mind, and concentrated on finding his true bearings.

He found that he had flown roughly one hundred and twenty miles off his course, and that Peshawar lay about three hundred miles west-by-north. The direct course would take him over dangerous land, but to fly south until he struck his original route, thought Harry, would use up too much precious petrol. Accordingly, he set a course for Peshawar, straight over the mountains, and hoped to goodness nothing would go wrong.

An hour and a half later, the young aviator had covered nearly two hundred miles, the motor behaving splendidly, when suddenly an ominent splutter brought his heart into his mouth. He glanced down at the petrol gauge, and for the second time that day experienced a paralysing shock.

It registered nil !

In a flash he realised the seriousness of his position. The fanatical native spy had forced him to fly so far off his course that he had already covered a greater distance than the direct journey from Bareilly to Peshawar, and his petrol supply had given out !

Fortunately he was flying high. As the engine stalled, he peered frantically around for a suitable landing ground, and rather to his surprise, espied one about a mile ahead. It appeared to be a broad flat stretch of grassland on the side of a mountain, forming a kind of enormous step, and to Harry it seemed nothing short of a miracle that it was there, because the surrounding country, as far as the eye could see, was composed of nothing but rocky hills and crags.

The engine stopped altogether, and the youngster knew he must act quickly. Flying speed had to be maintained, or a crash was inevitable, so he volplaned at a steep angle towards the level stretch on the mountain.

He flashed over it so closely as to almost touch, banked steeply, turned into the wind, and glided back again, landing without a bounce.

Harry sat back in the cockpit, and metaphorically scratched his head. Now what was his position ? Over a hundred miles from Peshawar, stranded in the hills—enemy country—with not a drop of petrol, and not a chance in a million of getting any, either.

He was not worrying about himself ; the despatch for Commander Kingston was first and foremost in his mind. By hook or by crook that had to be in Peshawar before nightfall, and it was now—he glanced at the clock let into the control panel—nearly noon. He wondered just how far he could be from the cantonment of Rawal Pindi, which was the nearest

friendly town he could think of, and reckoned it couldn't be very far away. Quite possibly it was on the other side of that high ridge about four miles to the south.

After a few moments' deliberation, the young airman decided that the only thing to do was to abandon his beloved 'plane and try to make his way on foot to Rawal Pindi. He was just lifting himself out of the cockpit when his blood froze in his veins. From the shadow of the towering mountain-side appeared scores of dark-skinned, robed figures, who pelted towards him with blood-curdling yells, brandishing scimitars. They were hillmen, of the same wild, warlike tribe who were causing all the trouble in the Khyber and surrounding districts!

Harry made a desperate effort to get at his revolver, but the hillmen surrounded him even before he had unfastened his flying-suit. He expected any moment to feel the thrust of steel, for these tribesmen were absolutely callous and merciless by nature. But it did not come; instead, he was roughly held and bound up, and forced along towards the grey stone buildings which Harry now made out, built close up against the towering grey rocks. They were so camouflaged as to be visible only at very close range.

In spite of his predicament, the youngster found time to be puzzled. What could be the purpose of this secret outpost of the hillmen?

He was bundled unceremoniously into one of the buildings, and fairly flung down in front of a desk at which sat a dark-skinned, turbanned man, writing with a fountain pen! Harry glanced around in surprise, for the place was fitted up in a style that was undoubtedly European. On the walls were physical, strategical and political maps of the district; rolled plans were neatly pigeon-holed, and the desk was dotted with neat files of papers.

Presently the turbanned man behind the desk looked up, and rather to his surprise Harry saw that he was quite young—very little older than himself, in fact, but the expression in his dark eyes was cruel and treacherous beyond description.

"Who is this?" demanded the chieftain—so Harry guessed—in his own language. One of the hillmen, with much salaaming, explained how the youngster had been captured, and the chieftain turned to Harry, addressing him, much to the latter's surprise, in very good English with a pronounced 'Varsity accent.

"How did you find this place, English dog?"

Harry blushed with anger, but compressed his lips, for nothing would be gained by losing his temper, and he might need all his cool wits before

this interview was concluded, if he were to save the despatch from falling into the enemy's hands.

" Answer me ! " snarled the chieftain, or I'll have you whipped to death. Who sent you here ? What do you know of this outpost ? "

Harry shrugged his shoulders, though the veins in his temple stood out with suppressed anger.

" This is my first knowledge of the existence of such a place as this," said Harry, " and I'm bound to say," he added, " that the first impression is distinctly rotten ! "

He was gazing straight into the chieftain's black eyes as he spoke, and that worthy flushed under his tan. " Impudent puppy ! " he snarled. " Your English insolence will earn you the lash before many minutes have passed. Do not lie to me ! How have you found this place, if as you say you knew nothing of it ? "

" My 'plane ran out of petrol, and I landed on the only flat bit of ground I could see—but I might add that I hardly anticipated such a hearty reception as this ! "

Harry had mastered his feelings now, and grinned despite the seriousness of his position. Notwithstanding his bonds, he actually felt superior to the shifty-eyed mountain chief, who was using his English education to fight against the English.

The man behind the desk ignored the second phrase of Harry's remark.

" Is that the truth ? " he demanded, leaning forward.

Harry gazed steadily at the chieftain.

" I'm British," he said, simply. " But if your Eastern mind needs proof of my words, my machine is out there. You will find the petrol tank quite dry."

The chieftain frowned thunderously, and rapped out instructions in the vernacular to two of his men, who hurried out. The young captive guessed he had sent them to ascertain if he were speaking the truth.

Presently they returned, and the chieftain's relief at their report was almost comical. It was clear to Harry that he really believed the secret outpost had been discovered, and that the mad English had sent out a 'plane, possibly for reconnoitering purposes.

For some minutes Harry was cross-examined, and he stuck to the truth in his replies, only taking the greatest care in concealing the fact that he was carrying a despatch. Evidently they knew nothing of the important despatch for Peshawar—the native spy had carried that information with him when he fell from the 'plane, two hundred miles behind.

The greatest test for the youngster's nerves came when two of the hillmen searched him. Half a dozen times his heart stood still under a calm exterior when he thought they had found the secret pocket, but he thanked Providence when they left him, after relieving him of loose money, wallet, papers, and indeed, everything except the despatch.

" Take him away ! " rasped the voice of the chieftain, when they had searched Harry. " To-morrow I will have him flung over the precipice, unless a better use for him is suggested to me ! "

Harry was hustled out of the building, round a corner of towering rock, and bundled into a tiny, one-roomed structure out of sight of the rest of the buildings. It was built of rough-hewn stone, huge blocks of which were fitted together without mortar of any kind. There was no window in the place, and for ventilation it relied entirely on the chinks between the stones.

A guard was posted outside the massive door, and Harry could hear him pacing the rocky ground outside.

" Hm ! " he muttered. " Seems as if I shan't get out of here in a hurry. These walls must be a foot thick ! Anyway, if I do get out I can't possibly get more than a dozen yards. The place is fairly infested with dashed hillmen ! "

The bearded men were met by the hillmen.

Half an hour passed. Harry grew tired of racking his brains for a means of getting out of the prison, and better still, of getting the despatch to Peshawar before nightfall.

He found that he could see a little through the chinks in the wall, and through one in particular he could make out his useless 'plane. The natives had searched it, but as far as he could see, had not damaged it in any way.

Not that it mattered much, now, whether the machine were damaged or not ! whimsically thought Harry.

It was while he was peering at his 'plane that he caught his breath and listened intently. The deep drone of a powerful aeroplane had come to his ears !

The sound drew rapidly nearer, and a minute later Harry was astonished to see a great grey 'plane flash into his line of vision and taxi to a standstill within a few feet of his own 'bus !

What could this mean ? Had the British found this secret outpost, after all, and sent. . . . But no—this was not a British 'plane !

The young captive, staring incredulously through the chink in his prison wall, could not see any markings.

Presently three bearded, heavily muffled men climbed out of the machine, carrying with them weighty parcels. They were met by the hillmen, whom they accompanied back to the grey stone buildings out of Harry's limited range of vision.

The youngster shrewdly guessed the nature of the contents of the parcels brought by the bearded men, who were obviously Europeans, though Harry could not imagine exactly what nationality they were. There was only one reasonable explanation of the mysterious 'plane and its cargo—the hillmen were in league with some European Power, who were not only supplying arms and ammunition, but also directing activities, judging from the maps, plans, and general style of things in the building in which Harry had been questioned.

The three men did not return to their 'plane, and the youngster reasoned that they would probably remain in conference with the shifty chieftain for a few hours.

If only he could get out of his prison ! Harry realised the significance of his discovery. The importance of the despatch was dwarfed by the latest development, and the young R.A.F. pilot ground his teeth with chagrin when he realised that he would not be able to deliver either to the authorities. He gazed angrily round the small room for the hundredth time, as if ex-

pecting to see an opening suddenly appear. As he looked he was startled by a sudden rustle and flutter high up in the wall, and a small bat appeared, circled round in the semi-darkness, and vanished in a crevice on the other side. But it was not the bat which held Harry's attention. It was the place from which it had flown, because *one of the stones had moved !*

The movement was almost infinitesimal, but it had not escaped Harry's keen eyes. He knew that if such a small thing as a bat could move it, it must be loose. If it was loose, it could be pulled out—and it was a large block of stone. The opening it would leave would be large enough for Harry to squeeze through !

With feverish haste the young airman lifted the rough stool on to the rickety table—the only furniture the prison possessed, and scrambled up. He found that the stone was indeed loose, and balanced on the uneven surface of the stone below so that the slightest touch would make it rock almost imperceptibly.

It took Harry a very short time to carefully pull the stone inward, but he realised as soon as he saw its thickness, that it would be too much for him to lift. He eased it out as carefully as possible, braced himself to take the weight of it, and dragged the last corner off the ledge.

Crash !

The added weight of the great rock had proved too much for the rickety table, and it collapsed, depositing Harry, the stone and the stool on to the hard floor.

By a miracle, the youngster was not hurt, but he crouched with bated breath, wondering if the guard had heard the crash. Apparently he had not, for minutes passed in utter silence, and Harry wondered if the guard had been taken away, for assuredly had he been within twenty yards of the building he must have heard the noise !

The stone had broken in half, and by lifting one piece on to the stool, Harry could reach the hole in the wall. He drew himself up and squirmed head and shoulders through the gap, then he fairly froze. Directly beneath him was the guard, sitting on the ground, with his back to the wall, gazing round stupidly. Evidently he had been asleep, and the noise had wakened him without his realising what it was. Harry shrank back with bated breath, and waited some minutes before peering cautiously down again. He was rewarded by the picture of the guard calmly rolling a cigarette, blissfully unconscious of the treat that was in store for him.

The youngster climbed down again, and lifted the remaining half of

the stone into the hole. This was a feat of strength, for the rock weighed quite sixty pounds, and it had to be raised to the gap in the wall without a sound. Harry pulled himself up after it, listened to ascertain that the man below was not moving, and neatly slipped the stone out of the hole. He heard a crash and a grunt, and nothing more. Pulling himself farther through, he saw the guard lying inert, and his heart beat faster as he realised that his ruse had succeeded.

Harry worked his way headfirst through the hole, that being the only way—but he did not intend to fall headfirst ! He screwed himself round so that he was on his back when half-way through, then worked farther through until he was hanging headfirst down, with his back to the wall and only his calves resting in the hole. His hands found a tiny ledge in the uneven wall, and he swung out and down, giving a gentle push with his hands as he fell. Quite an acrobatic feat, and it landed him square on his feet, well away from the still form by the wall.

After making sure that the guard was indeed out of action, Harry swiftly donned the hillman's head-dress and robes over his flying kit, and taking with him the man's scimitar, he started off towards the two 'planes without hesitation, trusting to his disguise to save him. As luck had it, the 'planes were discernible from only a few of the buildings, not including the chieftain's headquarters, and rather to Harry's surprise, he reached them without being seen.

His intention was to take the big 'plane, but his heart sank when a brief examination told him that he could not possibly start it up and fly it alone. And then, once again, his quick brain came to the rescue. Darting to his own 'bus, he rummaged in the tool-kit, and brought to light a coil of rubber tubing. Working feverishly, he put one end of the tubing into the petrol tank of the hostile 'plane, expecting any minute to hear the yells of the hillmen behind. The other end of the tube just reached the petrol tank of his own machine. Harry swiftly removed the cap, then put the rubber tube to his mouth and sucked hard. With all the strength of his hefty lungs he pulled, then nipped the rubber between finger and thumb, dropped the end into the tank, and let go.

With hammering pulse the young aviator waited. For a second there was silence, then a musical trickle sounded in the empty tank, and he heaved a great sigh of relief. His trick was successful ! Owing to the fact that the petrol tank of his own 'plane was so much below that of the big machine, his improvised siphon was working beautifully.

Harry swiftly donned the hillman's headdress.

The petrol seemed to be running through painfully slowly, but there was nothing to do but wait until the tank held sufficient. Harry set the controls ready for starting, and then stood behind the machine, holding the scimitar, ready for anything.

The minutes dragged by interminably. Everything remained quiet, and at last the young pilot, inspecting the petrol gauge for the fiftieth time, judged that he had enough " juice " for the hour's trip to Peshawar. He lifted the tube out of the tank and dropped it to the grass, petrol still gushing from it. The siphon was still working !

Darting round to the front of the 'bus, Harry got the propeller into position, swinging it with professional skill. The engine responded immediately, and the deep-tones throb sounded as music in the youngster's ears !

Skipping nimbly under the wing, Harry vaulted into the cockpit and revved up without wasting time with the safety strap. Slowly the little 'bus moved forward and gained speed. Harry was as cool as ice as he handled the controls. A mistake now would ruin everything !

Gently he eased up the elevators, and smoothly as any bird the Blackburn left the ground and zoomed upward. Harry allowed himself a glance behind, and what he saw made his heart jump into his mouth. The three mysterious visitors and a crowd of hillmen were sprinting from the stone buildings, but that was not surprising—from the big 'plane was shooting a great white sheet of flame!

At once Harry realised what had happened. A spark from the exhaust of the Blackburn had ignited the petrol pouring from the rubber tube, and like a flash the flames had shot up to the petrol tank. All unwittingly he had very effectively prevented the enemy from following and fighting him!

. . . . . .

Harry was nearly shot when he climbed out of his 'plane at Peshawar, because he had quite forgotten that he was still wearing the Hillman's head-dress and robes, and the sentry happened to be the kind who shoots first and asks questions afterwards. The youngster peeled off the disguise just in time, however, and so lived to deliver the despatch to Commander Kingston, and to report the whole of the strange story, from the time he set off from Bareilly that morning.

The valuable information Harry Elford was able to give enabled the British authorities to put their finger right on the source of all the trouble in the district, and to deal effectually with it in a tenth of the time it would otherwise have taken.

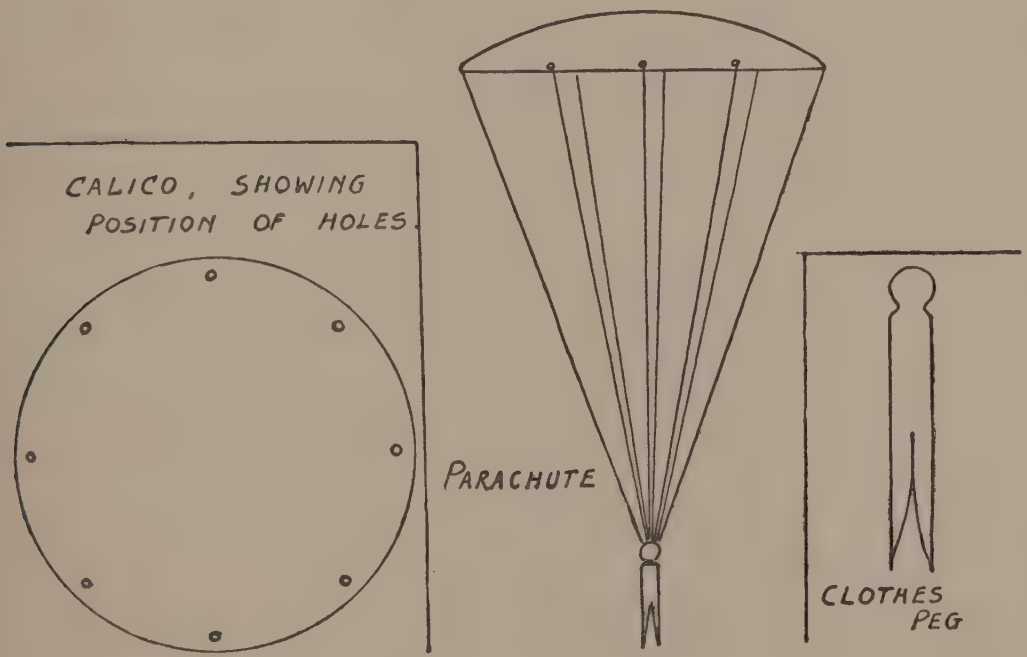
But Harry has learned at least two little lessons. To carry his revolver in an accessible place when flying, and—to look under the tarpaulin cover of the rear cockpit when going up alone!

How to Make a Model Parachute

IT'S JUST LIKE THE REAL THING!

By MORTIMER RUSSELL.

I EXPECT all of you have made paper "darts," but how many have tried making parachutes that fly just like the real thing? And they're so easy, too!



First of all you should obtain an old piece of thin material, calico, for example. You must cut this in the shape of a circle, with a pair of scissors. The larger it is, the better; but do not make it more than eighteen inches in diameter.

When you have cut out your circle of cloth you must then make eight

small holes round the edge. These should be an equal distance from one another, as shown in the sketch.

Now you must get some strong twine or very thin string and cut eight lengths, each about one and a half times as long as the diameter of your parachute. Thus, if your circle of cloth is twelve inches wide, your threads will be eighteen inches in length.

The threads should be slipped through the holes in the cloth and tied. Then borrow a clothes peg—like the one shown in the sketch. When you have given the top of it a pair of eyes, a nose and a mouth with a pen and ink, your " pilot " will be ready to have the parachute tied to his back !

The ends of the eight threads should be tied round the " pilot's " neck, and you must take special care to see that when the threads are tied, they are all still the same length. The best way to test it is to hold the centre of the parachute and allow the pilot to dangle. He should then hang exactly under the centre of the cloth.

Now that you have made your parachute, and the pilot is ready, you will want to know the best way to fly it. Carefully roll the parachute into a tight bundle, taking care not to get the threads tangled, and then throw it hard into the air. As it flies the parachute will unroll and drift slowly to earth.

If you find that your parachute comes down too quickly, you must lighten it, by cutting a little off your pilot's legs until he is the right weight. If the parachute is not weighted properly—which means that the pilot is not heavy enough—you can put things right by driving a nail or more into the wood.

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